

**United States Department of the Interior
Bureau of Land Management**

**Environmental Assessment
DOI-BLM-CO-N05-2014-0115**

WPX's Proposed RG 13-13-298 well pad (20 APDs)

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U.S. Department of the Interior
Bureau of Land Management
Northwest District
White River Field Office
220 East Market St
Meeker, CO 81641

BLM



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1. INTRODUCTION

1.1. Identifying Information

Project Title: WPX's proposed RG 13-13-298 well pad (20 APDs)

Legal Description: T. 2 S., R. 98 W., Section 13

Applicant: WPX Energy Rocky Mountain LLC.

NEPA Document Number: DOI-BLM-CO-N05-2014-0115-EA

Lease/Casefile/Project Number: COC-03453

COC77001 (Bargath pipeline ROW)

COC77001-01 (Bargath TUP)

COC77002 (WPX Temporary Frac Lines and Well Pad)

COC67964 (WPX Access Road ROW)

1.2. Background

The Bureau of Land Management (BLM) conducted an on-site with WPX and other cooperating agencies for the RG 13-13-298 pad location on July 3, 2013 and then an Application for Permit to Drill (APD) was submitted on August 6, 2014.

1.3. Purpose and Need for Action

The purpose of the action is to provide the applicant the opportunity to develop oil and gas resources consistent with their federal oil and gas lease. The need for the action is established by the BLM's responsibility under the Mineral Leasing Act of 1920 (MLA), as amended [30 USC 181 et seq.], the Onshore Oil and Gas Leasing Reform Act of 1987, and the Energy Policy Act of 2005. The MLA authorizes the BLM to issue oil and gas leases for the exploration of oil and gas and permit the development of those leases. It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs while protecting other natural resources. The existing lease is a binding legal contract that allows development of the mineral by the lessee. The Federal Land Management and Policy Act and the Mineral Leasing Act allows for use of public land for rights-of-way for oil and gas infrastructure, with appropriate consideration of other public resources.

1.4. Decision to be Made

Based on the analysis contained in this EA, the BLM will decide whether to approve or deny the proposed RG 13-13-298 well pad with associated 20 Applications for Permits to Drill (APDs) and any associated rights-of-way (ROWs), and if so, under what terms and conditions. Under the

National Environmental Policy Act (NEPA), the BLM must determine if there are any significant environmental impacts associated with the Proposed Action warranting further analysis in an Environmental Impact Statement (EIS). The Field Manager is the responsible officer who will decide one of the following:

- To approve the APDs and ROW grants with design features as submitted;
- To approve the APDs and ROW grants with additional mitigation added;
- To analyze the effects of the Proposed Action in an EIS; or
- To deny the APDs and ROW grants.

1.5. Conformance with the Land Use Plan

The Proposed Action is subject to and is in conformance (43 CFR 1610.5) with the following land use plan:

Land Use Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP)

Date Approved: July 1997

Decision Language: “Make federal oil and gas resources available for leasing and development in a manner that provides reasonable protection for other resource values.” (page 2-5)

“To make public lands available for the siting of public and private facilities through the issuance of applicable land use authorizations, in a manner that provides for reasonable protection of other resource values.” (page 2-49)

1.6. Lease Stipulations & Lease Notices

Lease Serial Number: COC-03453

Effective Date of Lease: November 1, 1951

Lease Stipulations: There were no additional lease stipulations associated with this lease other than the standard lease terms.

2. PUBLIC INVOLVEMENT

2.1. Scoping

NEPA regulations (40 CFR 1500-1508) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to identify issues, concerns, and potential impacts that require detailed analysis. Scoping is both an internal and external process.

Internal scoping was initiated when the project was presented to the White River Field Office (WRFO) interdisciplinary team on August 19, 2014. External scoping was conducted by posting

this project on the WRFO’s on-line National Environmental Policy Act (NEPA) register on August 20, 2014.

3. PROPOSED ACTION AND ALTERNATIVES

3.1. Proposed Action

3.1.1. Project Components and General Schedule

WPX Energy Rocky Mountain LLC (WPX) is proposing to construct one well pad with 20 natural gas wells. There would also be an associated access road, pipeline, and remote fracing temporary surface lines.

The well pad would be 450 feet by 350 feet, for a total footprint of approximately 3.62 acres and 6.76 acres of total edge of disturbance acreage. After interim reclamation has been successful, the pad would be estimated to be reclaimed to approximately 1.59 acres.

The access road and pipeline would come off of Rio Blanco County (RBC) Road 26, for a construction length of approximately 1,919 feet and pipeline length of 1,880 feet. The pipeline and access road would share a construction corridor of 60 feet. The approximate disturbance would be 2.64 acres. The road would be a crown and ditch or in/out slope designed roadway. The ditch would be 2 feet-wide, with a 6 inch depth. Travel width of the road would be 24 feet, with a maximum grade proposed of approximately 10 percent. There would be three culverts installed along the access road. The pipeline trench would have an eight-inch gas line and two four-inch water lines installed at a depth of three to five feet.

WPX would also remotely frac the well from the existing RG 23-14-298 well pad in T. 2 S., R. 98 W., Section 14. This activity would require the use of three, 4.5-inch temporary surface frac lines, and these lines would run along the existing road between the proposed location and the RG 23-14-298 well pad.

If approved and implemented, the Proposed Action would result in approximately 9.4 acres of initial disturbance. After successful interim reclamation, disturbance would be reduced to approximately 2.82 acres of disturbance, and after final reclamation is successful, the disturbance should be reduced to no surface disturbance (Table 2).

Table 1. Anticipated Surface Disturbance for the RG 13-13-298 Well Pad Location and 20 associated wells

| Project Component | Disturbance During the Construction Phase (acres) | Disturbance During the Production Phase/After Interim Reclamation (acres) | Disturbance After Abandonment/Final Reclamation (acres) |
|--|---|---|---|
| 20 Well Pad (with Maximum Extent of Disturbance) | 6.76 | 1.59 | 0.0 |

| | | | |
|----------------------|------|------|-----|
| Access Road/Pipeline | 2.64 | 1.23 | 0.0 |
| Total | 9.4 | 2.82 | 0.0 |

3.1.2. Design Features

The entire Surface Use Plan of Operations (SUPO) is incorporated into the Proposed Action and is available for review at the WRFO. Key design features included within the SUPO to reduce or eliminate resource conflicts include:

1. WPX Energy adheres to complete compliance with federal and state air quality regulations as prescribed by the Clean Air Act and CDPHE Regulations Nos. 1,2,3 &7. WPX Energy is proactive in its permitting and compliance demonstrations by employing Emission Control Devices (ECD) where is warranted and closely monitors the operations of these devices. WPX Energy works closely with the CDPHE Air Pollution Control Division to obtain permits and make any air emission controls installed enforceable through compliance demonstrations and ensure that they meet the highest achievable efficiency and standards. WPX will limit unnecessary emissions from point or nonpoint pollution sources and prevent air quality deterioration from necessary pollutions sources in accordance with all applicable state, federal and local air quality law and regulations.
2. WPX will treat all access roads with water and/or chemical dust suppressant during construction and drilling activities so that there is not a visible dust trail behind vehicles. Any technique other than the use of fresh water as a dust suppressant on BLM lands will require prior written approval from the BLM.
3. All chemical management will comply with COGCC, CDPHE, and SARA Title III reporting requirements, including MSDS sheets for all chemicals used in WPX Energy’s operation.
4. Cultural surveys have been ordered. WPX will inform all persons who are associated with the project they will be subject to prosecution for knowingly disturbing archeological sites or for collecting artifacts.
5. If any archeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archeologist will be notified immediately. Work may not resume at that location until approved by the AO. WPX will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation options within 48 hours of the discovery. WPX, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented

in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.

6. Pursuant to 43 CFR 10.4(g), WPX will notify the AO, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to CFR 10.4(c) and (d), WPX will stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.
7. WPX will notify Craig Interagency Dispatch (970-826-5037) in the event of any fire. The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type, and provide their contact information. The reporting party, or representative of, should remain nearby, in a safe location, in order to make contact with incoming fire resources to expedite actions taken towards and appropriate management response.
8. All parties will not engage in any fire suppression activities outside the approved a project area. Accidental ignitions caused by welding, cuttings, grinding etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used WPX must notify incoming fire resources on extinguisher type and location of use.
9. WPX will chip and mix with topsoil for future redistribution all vegetation not being used for storm water management or erosion controls.
10. Drilling plans will comply with COGCC, CDPHE and local government agency ground water protection regulations.
11. Noise thresholds as established with COGCC will be complied with in accordance with State Title 34 regulations.
12. WPX will inform all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing or collecting vertebrate fossils, collecting large amounts of petrified wood (over 25lbs/day, up to 250lbs/year) or collecting fossils for commercial purposes on public lands.
13. If any paleontological resources are discovered as a result of operations under this authorization, WPX and any of its agents will stop work immediately at that site, and the BLM Paleontology Coordinator will be notified immediately. WPX will make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the AO. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 days, WPX will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and

avoiding further disturbance to the fossil resource, or (b) following the Paleontology Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.

14. Fences, water developments, cattleguards, gates or other livestock handling/distribution facilities that are damaged or destroyed either directly or indirectly as a result of implementation of this Proposed Action shall be promptly repaired or replaced by WPX to restore pre-disturbance functionality.
15. WPX will notify the permittee authorized to graze livestock within the project area or WRFO Range Management staff of planning construction activities 72 hours prior to beginning construction.
16. Erosion features such as rilling, gulying, piping and mass wasting on surface disturbance or adjacent to the surface disturbance as a result of these actions will be addressed immediately after observation by contacting the Authorized Officer (AO) and by submitting a plan to assure successful soil stabilization with BMP's to address erosion problems.
17. All spills will be managed in accordance with Federal, State and local requirements, including notification, reporting, response and remediation actions.

3.2. No Action Alternative

The No Action Alternative constitutes denial of the APDs associated with the Proposed Action and denial of any associated ROW grants. Under the No Action Alternative, none of the proposed project components described in the Proposed Action would take place.

3.3. Alternatives Considered but Eliminated from Detailed Analysis

No feasible alternative surface locations were identified for the proposed project that would result in fewer impacts than the proposed location.

4. ISSUES

The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. The following sections list the resources considered and the determination as to whether they require additional analysis.

4.1. Issues Analyzed

The following issues were identified during internal scoping as potential issues of concern for the Proposed Action. These issues will be addressed in this EA.

- **Air Quality**: Dust and equipment emissions from project construction, well drilling, well completions, and well production may impact the level of pollutants in the atmosphere and air quality standards.
- **Geology and Minerals**: The proposed project is located within an area where there may be conflict with other mineral resources.
- **Soil Resources**: Surface disturbance associated with construction of well pads, roads, and pipeline trenches would result in disturbance of local soils.
- **Surface and Groundwater Quality**: Surface disturbance, potential spills, and completion activities may affect surface and groundwater resources.
- **Vegetation**: Initial surface disturbance associated with construction of the access road, pipeline and wellpad would result in 9.4 acres of vegetation removed. After interim reclamation vegetation would be removed from 2.82 acres.
- **Invasive, Non-Native Species**: Surface disturbance associated with construction of the wellpad, access road, and pipeline trenches would result in disturbance of local soils, thus increasing the possibility of invasive, non-native plant species being introduced.
- **Migratory Birds**: Well development activities would result in long-term modification of nesting habitat and would prompt avoidance-related disuse of otherwise suitable nesting habitat.
- **Terrestrial Wildlife**: Well development activities would result in the long-term modification of terrestrial habitats that provide big game and raptor forage and cover resources and influence the subsequent utility of these habitats in the support of seasonal use functions.
- **Special Status Animal Species**: Water used in the development of these wells would contribute to incremental depletions in streamflow-supporting downstream populations of fish listed under the Endangered Species Act, including: Colorado pikeminnow, razorback sucker, bonytail, and humpback chub.
- **Cultural Resources**: There are two sites located within the projects Area of Potential Effect. One site is a potential wickiup site and the other is probably a Ute trail, which tribal authorities have identified as site types of concern.
- **Paleontological Resources**: The project is located in an area and geologic formation known to produce scientifically noteworthy fossil resources. Excavations into the

underlying formation have the potential to impact noteworthy and scientifically important fossil remains.

- **Visual Resources:** The Operator has proposed to paint all above ground production equipment Shadow Gray from the BLM Standard Environmental Chart CC-001: June 2008. This could potentially impact the Visual Resource Management class III objective of partially retaining the existing character of the landscape in this area.
- **Livestock Grazing:** Surface disturbance associated with construction of the wellpad, access road, and pipeline would affect the amount of vegetation in the Square S grazing allotment.
- **Forestry and Woodland Products:** Surface disturbance associated with construction of the wellpad, access road, and pipeline would result in pinyon/juniper woodland removal.
- **Recreation:** The implementation of the Proposed Action with the initial surface disturbance associated with construction of the access road, pipeline and wellpad would result in 9.4 acres of public land currently available for dispersed recreation being impacted.
- **Realty Authorizations:** The natural gas pipeline requires a right-of-way (ROW) and the temporary construction area requires a temporary use permit (TUP) because the ROW and TUP would be authorized to Bargath, LLC (a third party gathering company). The off-lease portion of the temporary surface frac lines and frac pad would require a ROW. The off-lease portion of the access road is authorized in ROW COC67964. The water pipeline is on-lease; therefore a ROW would not be required.
- **Hazardous or Solid Wastes:** The potential for harm to human health or the environment are presented by the risks associated with spills of fuel, oil, and/or hazardous substances used during oil and gas operations. Accidental releases could cause soil, surface water, and/or groundwater contamination.

4.2. Issues Considered but not Analyzed

- **Floodplains, Hydrology, and Water Rights:** The Proposed Action is not in a floodplain and would be unlikely to impact surface hydrology. Freshwater for drilling and construction operations would be obtained through permitted water rights.
- **Wetlands and Riparian Zones:** Surface disturbance associated with the Proposed Action would be separated from the nearest riparian communities in Piceance Creek by 1.5 to 2 miles of barren ephemeral tributaries and 3 to 4 miles of lower Ryan Gulch. The lower reach of Ryan Gulch is characterized primarily by ephemeral, xeric scrub-shrub channels, but valley drainage is intermittently overland (nonchannelized) or supports short disconnected reaches of facultative herbaceous riparian growth confined to narrow channel bottoms. Considering interim reclamation requirements, compliance with State

and Federal drilling and completion regulations, and lengthy separation of project work from perennial streams that support riparian vegetation, there is no foreseeable likelihood that the Proposed Action would contribute sediments or contaminants capable of adversely influencing riparian resources or processes.

- **Aquatic Wildlife:** Although Piceance Creek's water quality conditions are seasonally influenced by spring calving and summer irrigation practices, it supports a self-sustaining native fishery composed primarily of mountain sucker (BLM sensitive) and speckled dace. Occasionally rainbow and brown trout occupy these middle reaches, having escaped from stocked populations upstream. BLM sensitive leopard frogs are distributed sporadically along Piceance Creek and its associated wetlands, as well. Based on physical and functional separation and management controls applied to the Proposed Action (see Wetlands and Riparian Zones section), the risk of the Proposed Action contributing sediments or contaminants at levels capable of adversely influencing aquatic or riparian resources, processes, or organisms would be negligible.
- **Native American Religious Concerns:** No Native American religious concerns are known in the area, and none have been noted by Ute tribal authorities. Should recommended inventories or future consultations with Tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures may be undertaken.
- **Special Status Plant Species:** No Special Status Plant Species (SSPS) were observed within 600 meters of the Proposed Action. Five isolated areas of marginally suitable habitat have been mapped by WestWater Engineering within 600 meters of the proposed wellpad, but no plants have been observed occupying the habitat (WestWater 2014, 2012). The RG 23-14-298 location where WPX proposes to remote frac from has several marginally suitable habitats surrounding the well pad (WestWater 2012).

The proposed well pad, access route, pipeline and temporary remote frac lines would have no conceivable influence on SSPS or associated habitats as long as the frac lines are staked and placed accordingly within existing disturbance.

- **Areas of Critical Environmental Concern:** The nearest ACEC is Ryan Gulch, which is 2.6 miles to the northeast of the Proposed Action. There would be no known impacts from the Proposed Action.
- **Wild Horses:** The Proposed Action is not located within the Piceance-East Douglas Herd Management Area or the North Piceance and West Douglas Herd Areas. However, wild horses are known to be in the Ryan Gulch area because they have relocated outside of the PEDHMA boundaries, but impacts would not be expected to wild horses as a result of the wellpad or infrastructure construction.
- **Social and Economic Conditions:** There would not be any substantial changes to local social or economic conditions.

- **Environmental Justice**: According to the most recent Census Bureau statistics (2010) and guidelines provided in WO-IM-2002-164, there are no minority or low income populations within the WRFO.
- **Prime and Unique Farmlands**: There are no prime and unique farmlands within the project area.
- **Access and Transportation**: The access road for the wellpad would start from RBC Road 26. Incremental increases in traffic and travel times may occur on the county road, but would be minor.
- **Lands with Wilderness Characteristics**: There are not any Land with Wilderness Characteristics located near the Proposed Action.
- **Wilderness**: There are no designated Wilderness areas or Wilderness Study Areas located near the Proposed Action.
- **Fire Management**: The Proposed Action is located within the C6 Lower Piceance Basin Fire Management Polygon. Fire Management officials have a full range of management responses in this area, the overall objectives and strategies would be affected in the short term during construction and as the operation is conducted. Overall, the Proposed Action would have no long term impacts on fire management.
- **Wild and Scenic Rivers**: There are no Wild and Scenic Rivers within the WRFO.
- **Scenic Byways**: There are no Scenic Byways within the project area.

5. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

5.1. General Setting & Access to the Project Area

The proposed location is in the Piceance Basin between RBC Roads 24 and 26 west of RBC Road 5. The location is on the upper slope of a small ridge at an elevation of approximately 6,671 feet in pinyon-juniper woodland.

5.2. Cumulative Impacts

5.2.1. Cumulative Impacts Analysis Areas

The geographic extent of cumulative impacts varies by the type of resource and impact. The timeframes, or temporal boundaries, for those impacts may also vary by resource. Different spatial and temporal cumulative impact analysis areas (CIAAs) have been developed and are listed with their total acreage in Table 2.

Table 2. Cumulative Impact Analysis Areas by Resource

| Resource | CIAA | Total CIAA Acreage | Temporal Boundary |
|---|---|---------------------------|--|
| Air Quality | WRFO Planning Area | 2.7 million Acres | Through 2021 |
| Geology and Minerals | Federal Oil and Gas Lease COC03453 | 2,371 acres | Effects to these resources would generally remain until successful final reclamation of the well pad (+35 years) |
| Soil Resources, Surface and Groundwater Quality | 6th-Level Hydrologic Unit Code of the Outlet Piceance Creek watershed | 14,020 acres | Effects to these resources would generally remain until successful final reclamation of the well pad (+35 years) |
| Recreation and Visual Resources | GMU 22 | 632,894 acres | The potential for effects to these resources could be throughout the life of the wells (+35 years). |
| Hazardous or Solid Wastes | 6th-Level Hydrologic Unit Code of the Outlet Piceance Creek watershed | 14,020 acres | The potential for effects to this resource could be throughout the life of the wells (+35 years). |
| Cultural resources | GMU 22 | 632,894 acres | The potential for effects to these resources could be throughout the life of the wells (+35 years). |
| Paleontological resource | MPA/Uinta formation | 576,259 acres | Effects to these resources would generally remain until successful final reclamation of the well pad (+35 years) |
| Vegetation | MPA | 576,259 acres | The potential for effects to this resource could be throughout the life of the wells (+35 years). |
| Invasive, Non Native Species | White River BLM Field Office | 64,050 acres | Effects to this resource have the |

| | | | |
|--|---|--|---|
| | Rangeland Grazing Allotment-Square S | | potential to be permanent. |
| Livestock Grazing | White River BLM Field Office Rangeland Grazing Allotment-Square S | 64,050 acres | The potential for effects to this resource could be throughout the life of the wells (+35 years). |
| Forestry and Woodland Products | Mature Pinyon-juniper woodlands for Piceance Basin | 162,245 | Project initiation until final abandonment of wells and redevelopment of woodlands. |
| Terrestrial wildlife, migratory birds, BLM sensitive species (terrestrial) | Piceance Basin/Mesaverde Play Area | 462,000 acres | Initiation of Proposed Action through final reclamation of well pad and access and redevelopment of shrubland character on reclaimed acreage could occur. |
| Colorado River fishes | Upper Colorado River Basin | 110,000 square miles (upper river basin) | Cumulative impacts could occur from initiation of project through final reclamation of well pad and access. |

5.2.2. Past, Present, and Reasonably Foreseeable Future Actions

Cumulative effects are defined in the CEQ regulations (40 CFR 1508.7) as “...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.”

Cumulative impacts from oil and gas development within the WRFO were disclosed in the 1996 White River Resource Area Proposed RMP and Final EIS. A Reasonably Foreseeable Development (RFD) scenario compiled for the 1996 EIS estimated that oil and gas development would occur primarily south of Rangely, would consist of approximately 1,100 single well pads and would result in an estimated surface disturbance of 11,000 acres (10 acres per pad including associated infrastructure).

The BLM estimated actual development to date in 2011. From July 1, 1997 until August 19, 2011, there were 1,132 Federal wells drilled (including Federal wells drilled from fee pads). During that same time period, there were 261 plugged and abandoned wells and 375 abandoned

wells. The BLM estimated surface disturbance associated with oil and gas development to be 9,165 acres and reclamation to be 783 acres (assumed 3 acres per plugged and abandoned location).

In 2015, the BLM published the Oil and Gas Development Proposed RMP Amendment/FEIS which considered changes in the location, type, and level of oil and gas development within the resource area. Based on an updated 2007 RFD scenario, it is assumed that the majority (95 percent) of oil and gas development would occur within the Mesaverde Play Area (MPA; Piceance Basin) and consist of multi-well pads. The preferred alternative in the Proposed RMPA/FEIS considered drilling up to 15,040 wells from 1,100 well pads with an associated surface disturbance of 13,200 acres (see Page 2-8 of the Proposed RMPA/FEIS). An estimated 12 acres per pad would be disturbed initially (including areas needed for associated infrastructure), however that would be reduced to 5 acres per pad following interim reclamation (see Table 4-2 of the Proposed RMPA/FEIS). Further, it was assumed there would be up to 790 miles of roads and 565 miles of utility lines (pipelines and power lines) developed to support this activity (see Table 4-3 of the Proposed RMPA/FEIS).

As of March 2014, the Colorado Oil and Gas Conservation Commission database indicated there were a total (i.e., including those drilled prior to the 1997 RMP) of 2,562 producing wells, 320 shut-in wells, and 84 wells where drilling has begun but are not yet in production.

Estimates of surface disturbance within the lease (COC1491 at the surface location) that are most likely attributed to oil and gas activities equal approximately 23 acres. This area represents 4 percent of the total area of the lease, which is approximately 600 acres in size.

Producing well density in the project area equals <1 producing well per square mile, while road density in the project area equals approximately 3 miles of road per square mile. This project is located within the MPA, where it was assumed that full-field development would require two to three pads per section.

5.3. Air Quality

5.3.1. Affected Environment

The U.S. Environmental Protection Agency (EPA), as directed by the Clean Air Act (CAA), has established national ambient air quality standards (NAAQS) for criteria pollutants. Criteria pollutants are air contaminants that are commonly emitted from the majority of emissions sources and include carbon monoxide (CO), lead (Pb), sulfur dioxide (SO₂), particulate matter smaller than 10 and 2.5 microns (PM₁₀ and PM_{2.5}, respectively), ozone (O₃), and nitrogen dioxide (NO₂). Please note that ozone is generally not directly emitted from sources, but is chemically formed in the atmosphere via interactions of oxides of nitrogen (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight and under certain meteorological conditions (NO_x and VOCs are ozone precursors). Exposure to air pollutant concentrations greater than the NAAQS has been shown to have a detrimental impact on human health and the environment. The EPA regularly reviews the NAAQS (every five years) to ensure that the latest science on health effects, risk assessment, and observable data such as hospital admissions are

evaluated, and can revise any NAAQS if the data supports a revision. The current NAAQS levels are shown in Table 1 in Appendix B. Ambient air quality standards must not be exceeded in areas where the general public has access.

The CAA established two types of NAAQS:

Primary standards: Primary standards set limits to protect public health, including the health of "sensitive" populations (such as asthmatics, children, and the elderly).

Secondary standards: Secondary standards set limits to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings.

In addition to the criteria pollutants, regulations also exist to control the release of hazardous air pollutants (HAPs). HAPs are chemicals that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. EPA currently lists 188 identified compounds as hazardous air pollutants, some of which can be emitted from oil and gas development operations, such as benzene, toluene, and formaldehyde. Ambient air quality standards for HAPs do not exist; rather these emissions are regulated by the source type, or specific industrial sector responsible for the emissions.

The EPA has delegated regulation of air quality to the State of Colorado (for approved State Implementation Plan (SIP) elements). The Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division (APCD) administers Colorado's air quality control programs, and is responsible for enforcing the state's air pollution laws.

The CAA and the Federal Land Policy and Management Act of 1976 (FLPMA) require the BLM to ensure actions taken by the agency comply or provide for compliance with federal, state, tribal, and local air quality standards and regulations. FLPMA further directs the Secretary of the Interior to take any action necessary to prevent unnecessary or undue degradation of the lands [Section 302 (b)], and to manage the public lands "in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values" [Section 102 (a)(8)].

Existing Regional Air Quality

Air quality for any area is generally influenced by the amount of pollutants that are released within the vicinity and up wind of that area, and can be highly dependent upon the contaminants chemical and physical properties. Additionally, an area's topography or terrain (such as mountains and valleys) and weather (such as wind, temperature, air turbulence, air pressure, rainfall, and cloud cover) will have a direct bearing on how pollutants accumulate or disperse. Ambient air quality in the affected environment (i.e. compliance with the NAAQS) is demonstrated by monitoring for ground level atmospheric air pollutant concentrations. The APCD monitors ambient air quality at a number of locations throughout the state. The data is summarized by monitoring regions and CDPHE prepares an annual report ([Annual Air Quality Reports](#)) to inform the public about air quality trends within these regions. Similarly, several Federal Land Managers (FLMs) like the BLM, FS, and NPS, also monitor air quality for

NAAQS and Air Quality Related Values (AQRVs) to meet organic act requirements. Table 2 in Appendix B presents three years of monitoring data for criteria pollutants for each of the WRFO counties (or adjacent/representative county monitors where no monitoring exists in the WRFO). The maximum monitoring value is presented where multiple monitors exist within a single county that monitor for the same pollutant. Concentrations are in units of the standards form (see the “Level” column in Table 2), with the exception of the ozone data, which is shown as the 4th highest 8-hour average. To compute the ozone design value (3 year average of the 4th highest 8-hour max), sum all three years of data (if available) and divide by three.

Although the project area is currently designated as attaining, the NAAQS, area monitors (Rio Blanco County - Rangley, Colorado) have recorded exceedances of the NAAQS for the following pollutants: ozone. Exceedances by themselves do not necessarily mean that the area will be designated as nonattainment (which would be determined by CDPHE and EPA). The form of the NAAQS must be considered along with the monitored value.

AQRVs are metrics for atmospheric phenomenon like visibility and deposition impacts that may adversely affect specific scenic, cultural, biological, physical, ecological, or recreational resources. Visibility changes can occur when excessive pollutant contaminates (mostly fine particles) scatter light such that the background scenery becomes hazy. Deposition can cause excess nutrient loading in native soils and acidification of the landscape, which can lead to declining buffering capacity changes in sensitive stream and lake water chemistries (commonly referred to as acid neutralization change (ANC)). Air pollutants are deposited by wet deposition (precipitation) and dry deposition (gravitational settling). The chemical components of wet deposition include sulfate (SO_4), nitrate (NO_3), and ammonium (NH_4); the chemical components of dry deposition include sulfate, sulfur dioxide (SO_2), nitrogen oxides (NO_x), nitrate, ammonium, and nitric acid (HNO_3). A recent 2014 NPS Study suggests that the critical nitrogen load value for high elevation surface water in all natural areas of Colorado is 2.3 kg/ha-yr. The NPS *Technical Guidance on Assessing Impacts on Air Quality in NEPA and Planning Documents* suggests that critical sulfur load values above 3 kg/ha-yr may result in moderate impacts. AQRVs are important to FLMs because they have a mandate to ensure their Class I and sensitive Class II areas meet scientific (landscape nutrient loading) and congressionally mandated goals (i.e. regional haze). Class I areas are generally pristine landscapes such as national parks, national forests, and wilderness areas that are specifically provided the highest levels of air quality protection under the CAA. Sensitive Class II areas are usually afforded additional protection under state-specific rule making for one or more pollutants. This status elevates them above ordinary Class II areas, which account for every other area of the country that is not explicitly designated as Class I or Sensitive Class II.

As shown in Figure 3 in Appendix B, the following Class I/sensitive Class II areas are within or intersect the WRFO planning area: Dinosaur National Monument (sensitive Class II area - NPS) and Flat Tops Wilderness (Class I area – USFS).

The figures 4 and 5 in Appendix B provide current trend data for visibility and deposition at White River National Forest and Rocky Mountain National Park, respectively. In general, trends with a negative slope indicate better atmospheric conditions for each potentially affected area.

Greenhouse Gases and Climate Change

There is broad scientific consensus that humans are changing the chemical composition of Earth's atmosphere. Activities such as fossil fuel combustion, deforestation, and other changes in land use are resulting in the accumulation of trace greenhouse gases (GHGs), such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and several industrial gases in the Earth's atmosphere. An increase in GHG emissions is said to result in an increase in the earth's average surface temperature, primarily by trapping and thus decreasing the amount of heat energy radiated by the Earth back into space. The phenomenon is commonly referred to as global warming. Global warming is expected in turn, to affect weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, which is collectively referred to as climate change. The Intergovernmental Panel on Climate Change (IPCC) has predicted that the average global temperature rise between 1990 and 2100 could be as great as 5.8°C (10.4°F), which could have massive deleterious impacts on the natural and human environments. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and the burning of fossil carbon fuel sources have caused GHG concentrations to increase measurably, from approximately 280 ppm in 1750 to 400 ppm in 2014 (as of April). The rate of change has also been increasing as more industrialization and population growth is occurring around the globe. This fact is demonstrated by data from the Mauna Loa CO₂ monitor in Hawaii that documents atmospheric concentrations of CO₂ going back to 1960, at which point the average annual CO₂ concentration was recorded at approximately 317 ppm. The record shows that approximately 70 percent of the increases in atmospheric CO₂ concentration since pre-industrial times occurred within the last 54 years.

Project Area County Oil and Gas Production

Table 3 in Appendix B shows the current oil and gas production statistics on a per county basis (well counts and production numbers are for both federal and fee minerals) for counties containing the proposed project O&G development: Moffat, Rio Blanco and Garfield. The oil and gas data is from the Colorado Oil and Gas Conservation Commission (COGCC) database and is provided to convey the current level of intensity for oil and gas development within the vicinity of the proposed project.

National Emissions Inventory Data (2011)

As previously stated, air quality is generally a function of air pollutants emissions loading within any particular region. With respect to the proposed project counties (Moffat, Rio Blanco and Garfield in northwest Colorado), the following emissions inventories in Table 4 in Appendix B are provided to describe the affected environment in terms of current cumulative emissions intensities.

5.3.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

In general, the Proposed Action would have a temporary negative impact to air quality, which would mostly occur during the construction phase. Utilization of the access road, surface disturbances, and construction activities, such as drilling, hydraulic fracturing, well completion, and equipment installation would all impact air quality through the generation of dust related to

travel, transport, and general construction. This phase would also produce short term emissions of criteria, hazardous, and greenhouse gas pollutants from vehicle and construction equipment exhausts. Once construction is complete, the daily activities at the site would be reduced to operational and maintenance checks, which may be as frequent as a daily visit. Emissions would result from vehicle exhausts from the maintenance and process technician visits. The pad could be expected to produce fugitive emissions of well gas, which contains mostly methane and a minor fraction of volatile organic compounds. Fugitive emissions could also result from pressure relief valves and working and breathing losses from any tanks located at the site, as well as any flanges, seals, valves, or other infrastructure connections used at the site. Liquid product load-out operations would also generate fugitive emissions of VOCs and vehicular emissions. Most operations would be subject to some portions of the pollution control regulations currently on the books, and thus the proponent may have control equipment installed at the site to mitigate some or all of the expected fugitive emissions from flashing, load-outs, and leaks. Some control equipment, such as flares, would produce emissions of criteria, HAP, and GHG emissions via combustion.

As previously stated, ozone is not directly emitted like other criteria pollutants. Ozone formation and prediction is complex, generally results from a combination of significant quantities of VOCs and NO_x emissions from various sources within a region, and has the potential to be transported across long ranges. Therefore, it is typically not appropriate to assess (i.e. model) potential ozone impacts of a project on potential regional ozone formation and transport. However, BLM Colorado is performing a regional modeling study to assess potential ozone formation and impacts on a cumulative basis (see cumulative impacts for discussion).

Emission estimates for activities associated with the Proposed Action were calculated for this EA, and are disclosed in Table 5 in Appendix B. The emissions inventories (EI) considered reasonably foreseeable oil and gas development activities for the proposed wells, and includes emissions from both construction and production operations. The following pollutants were inventoried where an appropriate basis, methodology, and sufficient data exists: CO, NO_x (includes NO₂), PM_{2.5}, PM₁₀, SO₂, VOCs, HAPs, CO₂, CH₄, and N₂O. The EI was developed using reasonable but conservative scenarios for each construction and production activity. Production emissions were calculated for an entire year, and included activities that are not likely to occur every year (i.e. workovers and recompletions), thus the project inventory is conservative on an annualized basis. Potential emissions were calculated for each new project well, assuming the minimum/basic legally required emissions control measures, common industry practices (as provided by oil and gas operators for the WRFO RMP EIS air quality analysis), and any equipment configuration data that was provided by the Proposed Action proponent. Maximum foreseeable direct and indirect emissions would occur at the beginning of the project during the construction phase. It is assumed that production would not begin until all of the wells are completed and all of the necessary infrastructure and site equipment connections are made (i.e. individual wells would not be brought online while completion and testing activities are still occurring at the site).

The following assumptions were applied consistently to all potential activities associated with the Proposed Action for developing a project-specific emissions inventory:

- The emissions estimated for construction activities are based on the disturbed surface area of approximately 10 acres as described in the Proposed Action for well pad, access roads and any pipeline infrastructure. Assumes 50 percent manual dust emissions control.
- The emissions inventory calculations assume that all disturbed surfaces (pads and access roads) would receive appropriate application of water during construction phase and emissions calculations (approximately 50 percent dust control efficiency).
- Production phase equipment would include storage tanks, pneumatics and separation equipment. The emissions inventory assumes no well-head compression would be needed for the proposed wells. Tank flashing emissions (VOCs) are assumed controlled to 95 percent. Emissions calculations for pneumatic devices assume low-bleed rate devices (6 cfh max).
- Natural gas is assumed to be piped directly into a gathering system. Completion related flaring would be limited due to the implementation of green completions.
- Drill rigs, completion and fracing engines emissions are based on EPA Non-road Tier 2 emissions standards.
- The emissions inventory uses a western Colorado representative natural gas analysis to estimate VOC and HAP speciation percentages.
- Condensate and produced water emission calculations assume 5 bbls of condensate production per MMSCF of natural gas production and 14 bbls of produced water per day per well (based on COGCC 2012 data). Assumes 50 percent of produced water is hauled by truck and the other 50 percent is piped directly to processing facility.

Project-Specific Near-Field Impacts Analysis

The BLM Colorado Near-field Modeling Tool was used to screen project-level near-field NO₂ 1-hour, PM_{2.5} 24-hour and annual average concentrations, and 1-hour and annual average concentrations for the following hazardous air pollutants (HAPs): benzene, formaldehyde and n-hexane. The following paragraphs provide information for the screening level tool and analysis and show that screening level impacts would be acceptable with respect to air quality standards/impacts thresholds.

The BLM Colorado air quality near-field modeling screening tool uses the EPA AERMOD modeling system for estimating ambient air concentrations for 500-meter access road (or corridor) construction or travel emissions and air quality impacts for emissions associated with one or two centralized O&G well-pads/facilities. The total emissions associated with the 500-meter roadway/corridor are equally divided into volume sources, spaced at 10 meters apart. Ambient air receptors for the 500-meter roadway/corridor are spaced at 25 meters, starting at the edge of roadway/corridor out to 100 meters from volume emissions sources. For modeling air quality impacts associated with roadway/corridor activities, the user has the flexibility to select whether the emissions releases occur continuously all day or during primary daylight hours (12 hours ~ 7am - 7pm). One centralized volume and point source represents each facility/well-pad

for fugitive (non-combustion) and combustion-related emissions sources, respectively. Ambient air receptors for the facilities are setup as concentric rings with 25-meter spacing at distances of 50, 75, 100, 150, 250, 400, 500 and 1000 meters of the volume and point source locations. Modeled concentrations are estimated at elevations above emissions source base elevations, as designated by the user. Five years (2008-2012) of Colorado-based surface and upper-air meteorology is used to predict possible air quality impacts for both screening tools modules (roadway and centralized facilities).

Figures 6 through 8 in Appendix B show the emissions sources and ambient air receptor layouts and wind rose (wind direction and frequency diagram) for the near-field modeling screening tool.

An emissions rate for each volume and point source was modeled for the matrix of user-selected possibilities, as described above using the AERMOD modeling system. The various modeling scenario results datasets were then aggregated into a database. The BLM Colorado near-field screening modeling tool then selected the most representative group of modeled air quality impacts, based on the proposed project-specific inputs (receptor height, distance of sensitive receptor from emissions source(s), pollutant, averaging time, etc.), and directly scaled the AERMOD results based on actual emissions rates provided by the modeler. The following provides information for the screening-level modeling inputs:

- Annual emissions for each activity shown in Table 5 above were grouped into one of four emissions source groups (well pad volume source, 500 meter unpaved access road segment, wells development point and wells operation point), and then the total emissions for each source group were divided over the entire year to derive short-term (grams per second) emissions rate for modeling.
- No “sensitive” ambient air receptor, residence or place of business are within 1,000 meters of the proposed well-pad, so air quality impacts for the well-pad / facility modeling analysis were estimated at the farthest receptor ring (1,000 meters) for the screening-level tool. Receptors for the roadway-screening-level analysis were assumed to begin adjacent to the roadway, as shown in the figure above. Receptor base elevations were set equal to the emissions source base elevations (i.e. flat-terrain).
- Well-pad emissions sources for both construction and operations phase were modeled concurrently and assumed to last for at least 3 years (for estimating screening-level NO₂ 1-hour and PM_{2.5} impacts since those Standards are based on 3-year average values) that give an overestimate of potential impacts, since development/construction activities are projected to occur for less than one year.
- All ambient air NO_x is considered to be NO₂ (EPA Tier 1 modeling approach).
- For the roadway screening model tool, unpaved fugitive dust emissions were assumed to occur all day long for the entire year, which is likely an overestimate since most travel occurs during daytime hours.
- Recent monitored concentrations obtained from EPA’s Air Quality System were assumed to represent all existing emissions sources in the region not explicitly modeled and the following provides information for the background concentration values that were added

to modeled concentrations for the Proposed Action to develop cumulative concentrations for the near-field analysis:

- Year 2013 existing conditions/monitored concentrations values for NO₂ 1-hour (98th percentile daily maximum), PM_{2.5} 24-hour (2nd High) and annual averages were obtained from Table 2.
- Year 2012 monitoring data for HAPs: benzene, formaldehyde and n-hexane that are used as background values for cumulative near-field modeling are from a Rifle, Colorado monitor located near many western Colorado oil and gas facilities. 1-hour values are maximums for all reported concentrations in year 2012 dataset and annual average values are averages of all values in the year 2012 dataset.

Table 6 in Appendix B shows the screening-level modeled near-field impacts specific to this air quality impacts analysis. As shown in the Tables, all modeled impacts (including background concentrations) are below the applicable Standards or accepted thresholds.

Cumulative Impacts

The Proposed Action, when combined with the past, present, and reasonably foreseeable future actions, could contribute incrementally to the deterioration of air quality in the region. Development of fluid minerals at the rate proposed within the APDs would result in additional surface and subsurface disturbances and emissions during construction, drilling, completion, and production activities. The severity of these incremental impacts could be elevated based on the amount of contemporaneous development (either federal or private) in surrounding areas.

In consideration of disclosing cumulative and regional air quality impacts, the BLM has initiated the Colorado Air Resources Management Modeling Study (CARMMS). The study includes assessing statewide impacts of projected oil and gas development (both federal and fee (i.e. private)) out to year 2021 for three development scenarios (low, medium, and high). Projections for development are based on either the most recent FO Reasonably Foreseeable Development¹ (RFD) document (high), or by projecting the current 5-year average development paces forward to 2021 (low²). The medium scenario included the same well count projections as the high, but assumed restricted emissions, where the high assumed current development practices and “on the books” emissions controls and regulations (2012). Each FO was modeled with the source apportionment option, meaning that incremental impacts to regional ozone and AQRVs from Federal oil and gas development in these areas are essentially tracked to better understand the significance of such development on impacted resources and populations. The CARMMS project leverages the work completed by the [WestJumpAQMS](#), and the base model platform and model performance metrics are based on those products (2008).

Based on the CARMMS projections, the BLM continually tracks emissions changes and air quality conditions to determine which projection path (low, medium, high) would be most appropriate to estimate air quality impact correlations based on the cumulative development (i.e. net emissions changes) that has occurred since the base emissions inventory year (2008). Although the predicted impacts will be based on future modeling results (2021), the relative changes in the impacts between the scenarios will provide insight into understanding how

mass emissions impact the atmosphere on a relative basis. The following sub-section summarizes CARMMS results for projected new WRFO Federal oil and gas development (Federal O&G development year 2012 through year 2021).

CARMMS O&G Development and Emissions Tables

Table 7 in Appendix B provides the WRFO oil and gas development and projected production rates modeled for the CARMMS RFD (High) and 5-year Average (Low) modeling scenarios.

Table 8 in Appendix B provides baseline year 2011 and projected year 2021 Federal oil and gas emissions for the WRFO. The emissions changes (as shown) from baseline year 2011 to year 2021 is reflective of the CARMMS 10-year emissions change for WRFO Federal O&G development and production for both (High and Low) CARMMS modeling scenarios.

The CARMMS incremental modeling changes/results for each source group (i.e. WRFO planning area) are applicable for the amount of additional air pollutant emissions that were modeled in the Study. Annual oil and gas completions/development inventories (post-year 2011) are routinely compiled by the BLM to ensure that current and future oil and gas development does not exceed the acceptable “budgets” (O&G development / emissions rates), as modeled in CARMMS. There have been approximately 169 new Federal wells completed in WRFO for years 2012-2014, at a maximum rate of 92 new Federal oil and gas wells completed per year (year 2012). This development rate is much lower than the approximate 5,993 new Federal wells (approximately 599 new Federal wells per year) for WRFO, as modeled for CARMMS year 2021 RFD scenario (new development for years 2012 through 2021) and is currently tracking lower than the approximately 990 new Federal wells (new O&G development for years 2012 through 2021) for WRFO, as modeled for the CARMMS “low” scenario.

As future oil and gas development occurs (including the proposed project) in the WRFO, project-specific emissions (based on approved APDs) are being added to the total regional emissions estimates (all emissions sources: oil and gas emissions and more) to compare regional emissions rates modeled in cumulative air quality modeling studies (CARMMS) along with the corresponding modeling results to confirm that activities approved by the BLM Colorado are within the modeled emissions analyzed in the cumulative analyses. The results and summaries of these annual analyses will be included in the BLM Colorado Air Resources annual reports (projected to begin year 2015 for calendar year 2014).

Based on the oil and gas development level analysis, as described above, and the information provided in Table 8, it is reasonable to conclude that current levels of WRFO Federal oil and gas development are tracking at (or near) CARMMS “low” levels and the modeling results for the CARMMS low scenario are adequate for assessing future potential regional/cumulative air quality impacts. The following sub-section provides CARMMS Low scenario source apportionment modeling results for incremental WRFO oil and gas development in year 2012 through year 2021.

CARMMS Modeling Results for Low Scenario – WRFO Federal O&G

As described above, the current 5-year average development forward projections (Low) modeling scenario provides a look at impacts that would cover all potential oil and gas

development using historical O&G development trends data. Table 9 in Appendix B provides a quasi-cumulative summary of ozone, visibility and nitrogen deposition impacts for all of the projected WRFO Federal oil and gas emissions associated with the Low modeling scenario. These impacts show the relative contribution to full cumulative (all world-wide emissions sources) impacts for the projected year 2021 WRFO oil and gas emissions associated with the Low modeling scenario.

As shown in Table 9 of Appendix B, there are no days that the projected WRFO year 2021 Federal oil and gas emissions have a significant (~ 0.5 dv) visibility change impact at any Class I or sensitive Class II area and the maximum modeled nitrogen deposition contribution is minimal with respect to the cumulative critical nitrogen deposition load of 2.3 kg/ha-yr value. The maximum contributions to 4th high daily maximum 8-hour ozone concentrations are minimal with respect to the 75 ppb 8-hour ozone standard and the maximum contribution to the 8th high maximum 24-hour PM_{2.5} concentration is minimal with respect to the 35 ug/m³ 24-hour PM_{2.5} standard.

The information above shows that the predicted air quality impact contributions associated with the historical 5-year average oil and gas development scenario for the entire WRFO are minimal, and it is reasonable to conclude that project-level O&G development (based on actual development plans) would have even lower contributions to the overall cumulative air quality.

CARMMS Modeling Results – Full Cumulative

Since current oil and gas development rates are tracking at or below CARMMS Low modeling scenario oil and gas development projections (new O&G development for years 2012 through 2021) for all or most of the BLM Colorado planning areas / Field Offices, CARMMS Low modeling scenario results are also being reported for cumulative air quality impacts. It's important to note that all other emissions sources (other than new Colorado –based O&G) were modeled at the same rates for the CARMMS High and Low scenarios (the new Colorado O&G were the only source category with varying development/emissions rates for the different CARMMS modeling scenarios).

Table 10 in Appendix B provides a full cumulative summary of ozone, visibility and nitrogen deposition impacts for all (i.e. world-wide) emissions sources associated with the CARMMS Low modeling scenario.

For full cumulative ozone design value projections at regional ozone monitoring sites, the maximum current year 8-hour ozone design concentration (DVC; based on 2006-2010 observations) is 82.0 ppb at the Rocky Flats North (CO_Jefferson_006) monitor that is projected to be reduced to 78.1 ppb for the CARMMS 2021 Low Development Scenario.

For the ozone design value projection unmonitored area analysis (analysis for areas with no monitors), the geographical extent (i.e. size) of the overall area of ozone design value exceedances is reduced (from 2008 to 2021) and the following CARMMS plot shows predicted ozone reductions in the Denver and Salt Lake City areas for the CARMMS Low development scenario as seen in Figure 9 in Appendix B.

The following CARMMS plot shows changes in 8th highest daily average PM_{2.5} concentrations (2021 Low Scenario minus Base Year 2008 concentrations). As shown in the Figure 10 in Appendix B, concentrations are expected to increase in major Colorado Front Range cities and near mining operations in Colorado.

With the exception of PM_{2.5} concentrations near large cities and future mining operations, the CARMMS Low Scenario full cumulative modeling results show an overall improvement to air quality in the region from year 2008 to year 2021.

Greenhouse Gases and Climate Change

The implementation of the Proposed Action would be estimated to contribute 12,695 metric tons of carbon dioxide equivalent (CO₂(e)) in the maximum year. Annual operating GHG emissions would be 13% of the total emissions shown for the maximum year. Over a 25-year timeframe, the total GHG emissions expected would be approximately 48,214 metric tons CO₂(e) for the 20 new wells. The total emissions provided do not account for the ultimate use or consumption of any produced minerals at this time, due to the fact that the ultimate form of use and any additional processing required creating the product to sufficient quality (which could cause changes to the quantity of product) cannot be predicted with any reasonable certainty. Additionally, it should be noted that production values (also estimated at this time) could vary significantly over the life of the project, making any prediction of the quantities of GHG emitted highly speculative.

The CDPHE used the EPA's State Inventory Tool to estimate future years GHG emissions inventories for Colorado. In year 2020, it is estimated that Colorado's annual GHG emissions will be approximately 126,060,000 metric tons CO₂(e). It is anticipated that the Proposed Action's new 20 wells would be in full operation by year 2021 and the Proposed Action annual operations GHG emissions would represent about 0.04 percent of the state of Colorado's year 2020 annual GHG emissions. Given the relative magnitude of greenhouse gas emissions associated with the operation of the 20 new wells as compared to the state's GHG emission levels, the GHG contribution associated with the wells would be extremely small.

To provide additional context, the EPA has recently modeled global climate change impacts from a model source emitting 20% more GHGs than a 1500MW coal-fired steam electric generating plant (approx. 14,132,586 metric tons per year of CO₂, 273.6 metric tons per year of nitrous oxide, and 136.8 metric tons per year of methane). It has estimated a hypothetical maximum mean global temperature value increase resulting from such a project. The results ranged from 0.00022 and 0.00035 degrees Celsius occurring approximately 50 years after the facility begins operation. The modeled changes are extremely small, and any downsizing of these results from the global scale would produce greater uncertainty in the predictions. The EPA concluded that even if assuming such an increase in temperature could be downscaled to a particular location, it "would be too small to physically measure or detect" - see Letter from Robert J. Meyers, Principal Deputy Assistant Administrator, Office of Air and Radiation re: "Endangered Species Act and GHG Emitting Activities (Oct. 3, 2008). The project emissions would be a fraction of the EPA's modeled source and are shorter in duration. Therefore, it is reasonable to conclude that the project would have no measurable impact on the climate.

5.3.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

Under the No Action Alternative, the BLM would not authorize any of the Proposed Action elements. The project as designed would not be implemented and no emissions would occur. No impacts to air quality would occur. The incremental increase to global GHG burden would not happen, however it is entirely likely the predicted climatic changes would occur, regardless (the Proposed Action would have a very minor “footprint” in the overall big picture).

Cumulative Impacts

Impacts would be similar to those described for the Proposed Action alternative.

5.3.4. Mitigation Measures and Residual Impacts

Multiple near-field modeling assessments (including application of BLM COSO near-field impacts screening tool for the Proposed Action) performed by the BLM Colorado for Colorado-based oil and gas air quality assessments indicate that routine water (or product with equivalent dust control efficiency) application to unpaved surfaces is necessary during the oil and gas development/construction phase to achieve air quality compliance, even though construction phases last just a few weeks. The short-term particulate matter air quality standards do not allow for many exceedances per year and therefore could be exceeded multiple times, with only a couple of weeks of construction activities emissions not controlled. In addition, multiple Colorado-based near-field modeling assessments (including the screening-level assessment for the Proposed Action) for oil and gas development suggest that drill rig-, fracing- and completion-related engines should meet EPA Non-Road Tier II emissions standards (at a minimum) in order to achieve compliance with short-term NO₂ air quality standards.

It is anticipated that the operator would apply for either an APCD air permit for the site as a whole, or cover individual equipment under one of Colorado’s general permits for oil and gas operations. The state, as the regulatory authority for oil and gas actions, requires controls of emissions and standards for compliance that the operator will be subject to. It is expected that the operator will comply with the requirements and make every effort to minimize emissions through good engineering and operating practices to the maximum extent practical.

In addition to the applicant committed design features, existing state and federal requirements, the following BLM requirements will apply to minimize impacts associated with the development phase of the proposed project:

- All drill rig-, fracing- and completion-related engines will be required to meet EPA Non-Road Tier II Emissions Standards (or cleaner) for all well development operations.

5.4. Geology and Minerals

5.4.1. Affected Environment

Surficial geology of well pad RG 13-13-298 is a tertiary unnamed tongue of the Uinta Formation (Duncan). WPX's targeted zone is in the Mesaverde. During drilling, potential water, oil shale, oil, gas, and sodium resources would be encountered from the surface to the targeted zone. Fresh water aquifer zones that may be encountered during drilling would be the Perched in the Uinta, and the A-groove, B-groove, and dissolution surface in the Green River formation. These geologic zones, along with upper portion of the Wasatch, are known for difficulties in drilling and cementing. The well pad and wells are located in the area identified in the White River ROD/RMP as available for multi mineral leasing (sodium and oil shale) and in identified oil shale preference right lease area (COC69166). Natural Soda Inc.'s commercial solution mining operation for sodium bicarbonate is approximately eight miles north of proposed location. Oil shale research, development, and demonstration (RD&D) leases COC69166 and COC69169 are 3.1 miles northwest and 2.6 miles southwest, respectively, of the proposed pad. The proposed well pad and the 20 bottom hole locations are in federal oil and gas lease COC003453 (~2,371 acres), which is not committed to an oil and gas unit. The proposed well pad is designed 10-acre bottom hole spacing. Limited oil and gas exploration has occurred on the lease. This consists of two drilled and abandoned wells, one plugged and abandoned, and one producing well on four well pads (COGCC).

5.4.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

There would be potential for commingling of the aquifer zones during the drilling and completion operations of the proposed wells, however, the cementing procedure of the Proposed Action isolates the formations and would prevent the migration of gas, water, and oil between formations including the oil shale and sodium zones. Development of these wells would deplete the hydrocarbon resources in the targeted formation. The Proposed Action would be eight miles from active sodium operations and three miles from the nearest oil shale RD&D and would have no potential to effect existing or foreseeable sodium or oil shale development.

Cumulative Impacts

As mentioned above, the COGCC database identifies two drilled and abandoned wells and one producing wells within oil and gas lease COC003453. An additional 215 wells (11 pads) for full development of the natural gas resource within the lease would be necessary if bottom hole spacing of 10 acres is required for the recovery of the natural gas resources. It is unlikely development of the oil and gas resources would interfere with the foreseeable development of sodium or oil shale resources.

5.4.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

The natural gas resources in the targeted zones would not be developed at this time and would remain available for future recovery.

Cumulative Impacts

Impacts would be similar to those described for the Proposed Action alternative.

5.4.4. Mitigation Measures and Residual Impacts

No additional mitigation measures are required. The oil and gas resources within the targeted zones would be recovered.

5.5. Soil Resources

5.5.1. Affected Environment

The Proposed Action is in a Pinyon Juniper Woodland Ecological site, with slopes ranging from 0 to 25 percent and within the 6th-Level Hydrologic Unit Code of the Outlet Piceance Creek watershed (14,020 acres). Classifications of the soils and acreage directly impacted by the construction of the Proposed Action are shown in Table 3.

Table 3. Soil Classifications of the Proposed Action (NRCS, 2012)

| Soil Classification | Surface Texture | Erosion Hazard (Unsurfaced 'Road and Trails) | Site Degradation Susceptibility | Directly Impacted (Acres) |
|---|------------------------|---|--|----------------------------------|
| Redcreek-Rentsac complex, 5 to 30 percent slopes | sandy loam | Severe | Moderately | 10.4 |
| Rentsac channery loam, 5 to 50 percent slopes | channery loam | Severe | Moderately | 0.4 |

Erosion hazard classification indicates the potential of soil loss from unsurfaced roads. A rating of “severe” indicates that substantial erosion is expected, that the roads or trails require frequent maintenance, and that erosion-control measures are needed.

Site degradation susceptibility indicates the potential for soil degradation to occur during disturbance. A rating of “moderately” indicates that the soil has features that are moderately favorable for damage to occur.

The Proposed Action is not located in areas of fragile soils or soils with landslide potential.

5.5.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

Direct impacts from the construction of the well pad, access road and pipeline installation would occur on 9.4 acres. Impacts would include soil compaction, removal of vegetation, exposure of subsoil, mixing of soil horizons, loss of topsoil productivity, and an increase in the susceptibility of soils to wind and water erosion. Compaction due to construction activities would reduce aeration, permeability and water-holding capacities of soils in some locations. Removal of vegetation exposes soils to erosion from rainfall, wind and surface runoff. Exposure of subsoil and mixing of soil horizons can change the physical characteristics of subsoil and may reduce the productivity of these soils before reclamation is complete. Topsoil productivity could be reduced as a result of soil storage due to nutrient loss through percolation of precipitation through the soils, physical loss and mixing of less productive soil layers during moving, and a loss of the soil structure. An increase in surface runoff and sedimentation could be expected from impacted soils and these soils are likely to be less resilient to erosion from surface runoff after disturbance.

Soils adjacent to the disturbed area of the Proposed Action could be indirectly impact the by increase runoff and erosion from the disturbed area onto the adjacent soils. Direct and indirect impacts would be minimized by the implementation of WPX's SUPO for the Proposed Action. The SUPO includes implementation of Best Management Practices (BMPs) for stormwater management, interim and final reclamation. It also includes WPX's responsibility for inspection and maintenance of access roads along with minimum biannual preventive maintenance provisions. BMPs would be installed prior to, during, and following construction as practical.

Final reclamation on the pipeline and interim reclamation of the access road would commence upon completion of construction and successful reclamation achieved within three to five years. Interim reclamation of the pad would occur six months after the wells are completed. These reclamation efforts would reduce the non-reclaimed area to an estimated 2.82 acres for the duration of productive life of the well pad (35 years).

The potential exists for intense storm events or BMP failures that could result in soil erosion off site. The SUPO calls for a corrective action plan if erosion feature are detected on or adjacent to disturbed areas.

Indirect impacts from this project could result in contamination of surface and subsurface soils due to unintentional leaks or spills from construction equipment, storage tanks, or production equipment. Spills could affect the productivity of soils. Impacted soils would typically be removed or remediated on site and loss of soil productivity would be temporary.

Cumulative Impacts

The CIAA is within the MPA and is encompassed by a 6th-Level Hydrologic Unit Code within the Outlet Piceance Creek Watershed. All of the federal oil and gas mineral estate within the CIAA is currently leased (~13,500) representing approximately 96 percent of the 14,020 acres CIAA. Total number of producing well pads within the CIAA could range from 44 to 66. This is

based on the assumption that full field development would require 2 to 3 well pads per section. Currently, there are 25 producing well pads. An additional 18 to 41 well pads would be needed to achieve full field development in the CIAA. The 2007 RFD assumes that 12 acres of disturbance are associated with each well pad. Using this assumption, there would be an additional short term disturbance of 216 to 492 acres. Assuming successful interim reclamation remains consistent with the 70 percent achievement in the Proposed Action, the long term disturbance would be from 65 to 150 acres, or 0.5 to 1.1 percent of the CIAA.

In addition to other oil and gas activity, dispersed recreation (hunting) would seasonally utilize public access, which could add to the wear of road surfaces, along with use during poor conditions resulting in failure of drainage control features. This would require additional road maintenance activities to properly maintain access. Oil shale RD&D lease within the CIAA currently affects approximately 10 acres and could affect up to 35 acres.

In general, soil disturbance in the Proposed Action and other activities are likely to reduce soil productivity in the localized areas of disturbance, but are unlikely to impact overall soil productivity for the long term.

5.5.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

No impacts to soils would occur.

Cumulative Impacts

Impacts would be similar to those described for the Proposed Action.

5.5.4. Mitigation Measures and Residual Impacts

No additional mitigation measures are required. Approximately 2.82 acres of well pad and access road would remain without vegetation until the associated wells are plugged and abandoned and successful final reclamation of the access and well pad is achieved.

5.6. Surface and Groundwater Quality

5.6.1. Affected Environment

The well pad is located in the on a ridge between ephemeral drainages that drain into the ephemeral portion of Ryan Gulch approximately 2.7 and 4.0 miles upstream from the confluence of Ryan Gulch and Piceance Creek (Figure 1 in Appendix A). Piceance Creek is a tributary to the White River which flows west out of Colorado into Utah to its confluence with the Green River, which ultimately drains into the Colorado River. Table 4 describes the water segments of the White River drainage that may be impacted by this project.

Table 4. Water Quality Classification Table (Colorado Water Quality Control Commission (CWQCC 2014))

| Segment | Segment Name | Use Protected | Protected Beneficial Uses | | | |
|---------|---|---------------|---------------------------|--------------------------------|-------------|--------------|
| | | | Aquatic Life | Recreation | Agriculture | Water Supply |
| 16b | All tributaries to Piceance Creek below the confluence with Dry Thirteenmile Creek, except for the specific listings in Segments 15, 17, 18, 19 and 20. Dudley Gulch. | No | Warm 2 | Not Primary Contact Recreation | Yes | No |

Segment 16b is protected for warm water aquatic life (Warm 2). The warm designation means the classification standards would be protective of aquatic life normally found in waters where the summer weekly average temperatures frequently exceed 20 °C. The Warm 2 designation means that it has been determined that these waters are not capable of sustaining a wide variety of warm water biota. Segment 16 is on the monitoring and evaluation list for *E.coli*. Ryan Gulch is on Colorado’s 303d impaired waters and monitoring and evaluation list (CWQCC 2012).

Average rainfall in the general area ranges from 12 to 16 inches annually.

Groundwater: Precipitation in this area generally moves from areas of recharge to surface waters via alluvial aquifers and on the surface during spring melt and rain storms. A portion of annual precipitation infiltrates to deeper bedrock aquifers that contribute to contact springs. Springs and groundwater inputs generally occur in both bedrock and alluvial aquifers along valley bottoms. Perched groundwater zones occur locally when saturated zones contact differences in permeability and solubility of individual formations. These contact zones can occur in the ridges between surface water drainages and may be manifested as springs and seeps above the valley floor in outcrop areas.

The CIAA contains both alluvial and bedrock aquifers. The alluvial aquifers primarily consist of unconsolidated valley-fill deposits.

Fresh water aquifer zones occur in the Uinta and Green River Formations. The Green River Formation can generally be subdivided into an upper and lower aquifer zones, separated by a semi-confining oil shale rich stratigraphic zone known as the Mahogany Zone. The Uinta Formation and the portion of the Green River above the Mahogany zone can be referred to as the upper aquifer, with the primary aquifer zone being the A-Groove. The stratigraphic sections below the Mahogany Zone, referred to as the lower aquifer, contain the primary B-Groove and the Dissolution Surface aquifer zones. The Dissolution Surface is the deepest water-bearing zone in the Green River Formation. Depths below ground surface of the A-Groove, B-Groove, and Dissolution Surface are approximately 1,000, 1,200 and 1,500 feet, respectively, at the well pad site. The bottom of the Green River Formation is approximately 2,700 feet below ground surface. No known potable water aquifers occur below the Green River Formation.

5.6.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

Surface Water: Clearing, grading, and soil stockpiling activities associated with the Proposed Action would alter overland flow and natural infiltration patterns. Potential direct impacts would include surface soil compaction of the access and well pad areas, removal of vegetation and disturbance of surface soils - which would increase rain-splash erosion and reduce the soil's ability to absorb water - and increase the volume and rate of surface runoff, which in turn could increase surface erosion. Proposed BMPs in the SUPO, including road maintenance, would minimize the potential for erosion and increased sedimentation to surface waters.

Surface runoff associated with storm events could increase sediment loads in surface waters down gradient of disturbed areas. Sediment can be deposited and stored in minor drainages, where it could be moved into Ryan Gulch and Piceance Creek during heavy convective storms. Surface erosion from the Proposed Action would most likely occur during the construction and prior to successful interim reclamation and would be mitigated using stormwater BMPs.

Implementation of Proposed Action, as proposed, along with well pad site distance from and location along the ephemeral portion of Ryan Gulch, would make it unlikely the project would adversely impact the water quality of Ryan Gulch.

Groundwater: The proposed casing and cementing program for the wells is designed to protect and isolate all usable groundwater zones. Freshwater zones would be protected by cementing the area between the surface casing and formation. Cementing bonds the casing to the formation, restricts the movement of fluids and gases between formations, and protects the casing from corrosion. WPX's proposed surface casing would span the freshwater aquifer zones in the Green River Formation and be set several hundred feet into the next lower stratigraphic formation, named the Wasatch.

Loss of circulation could occur during the drilling process, due to changes in porosity or other formation properties. Aquifers could be impacted by the drilling fluids, if circulation is lost. Freshwater would be used during the drilling of the surface casing and, in the case of loss circulation, additives that would not contaminate groundwater. These measures would minimize potential impacts to the groundwater quality during drilling.

Impacts to groundwater resources could occur due to failure of well integrity, failed cement, surface spills, and/or the loss of drilling-, completion- and hydraulic-fracturing fluids into groundwater. Types of chemical additives used in drilling activities may include acids, hydrocarbons, thickening agents, lubricants, and other additives that are operator and location specific. Concentrations of these additives also vary considerably and are not always known, since different mixtures can be used for different purposes in the same well bore. According to COGCC requirements, all chemicals (greater than 500 pounds) used during drilling, completion, and work-over operations, including hydraulic fracturing treatments, will be disclosed in a chemical disclosure form by well site.

Hydraulic fracturing is designed to change the producing formations' physical properties by increasing the flow of water and gas around the well bore. Hydraulic fracturing may also introduce chemical additives into the producing formations. Chemical additives used in completion activities would mostly be pumped back to surface tanks before production. Left over fluids would be injected in a Class II injection well. COGCC's Rule 205A requires companies to disclose hydraulic fracturing chemicals used during well completions to the online FracFocus registry. Hydraulic fracturing of the proposed wells would occur greater than 5,000 feet below the deepest water-bearing zone in the Green River Formation, the Dissolution Surface.

Known groundwater bearing zones in the project area would be protected by the drilling plan, as described. Groundwater resources (including the contact springs, perched aquifers, and groundwater zones described in the Affected Environment) are all in elevations above the surface casing. With proper drilling and completion practices, contamination of groundwater resources is unlikely.

Cumulative Impacts

The CIAA for surface water and groundwater resources is the same as the Soil Resource section above and the cumulative impacts to surface waters would be similar. In addition, with the increase in the number of well pads and associated wells, there would be an increase for the potential of spills. According to the COGCC, approximately 0.006 percent of produced water and 0.003 percent of produced oil was spilled in 2014. It is likely the spill rate would be lower within the CIAA, due to existing pipeline infrastructure that would reduce the need for truck hauling and transferring of oil and gas fluids.

The oil shale RD&D west of the Proposed Action is within the Green River Formation and could potentially impact groundwater in the CIAA. The increased number of wells required for full field development would increase the potential of impacts to groundwater from drilling operations.

5.6.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

Neither surface water nor groundwater quality would be impacted by the No Action Alternative.

Cumulative Impacts

Impacts would be similar to those described for the action alternative, but would not include the impacts from the Proposed Action.

5.6.4. Mitigation Measures and Residual Impacts

No additional mitigation measures are required. Site storage and transportation of production fluids retain the potential for spill occurrence.

5.7. Vegetation

5.7.1. Affected Environment

The Proposed Action area is located on a mid to late-seral Pinyon Juniper Woodland Ecological site. The Pinyon/Juniper community is characterized by mature Utah juniper (*Juniperus osteosperma*), pinyon pine (*Pinus edulis*) and sparse herbaceous understory. Predominant plant species typically observed in the Pinyon/Juniper community are; pinyon pine, Utah juniper, mountain mahogany (*Cercocarpus montanus*), Antelope bitterbrush (*Purshia tridentata*), serviceberry (*Amelanchier alnifolia*), Wyoming big sagebrush (*Artemisia tridentata* spp. *wyomingensis*), rabbitbrush (*Chrysothamnus viscidiflorus*), bluebunch wheatgrass (*Pseudoroegneria spicata*), junegrass (*Koeleria macrantha*), muttongrass (*Poa fenleriana*), Indian ricegrass (*Achnatherum hymenoides*), and Western wheatgrass (*Pascopyrum smithii*). There is a minor component of cheatgrass (*Bromus tectorum*) found in the area.

5.7.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

Vegetation resources would be directly affected by the construction of this well pad and its associated infrastructure (access road and pipeline) on approximately 9.4 acres. Direct effects would involve removal of native herbaceous and woody vegetation. After successful interim reclamation, the majority of the disturbed area would be reclaimed and re-vegetated.

Approximately 30 percent (2.82 acres) would remain un-vegetated for the life of the pad. At final reclamation, the entire well pad and access route would be reclaimed back to a natural state.

The proposed frac lines would run along the existing road disturbance between the proposed location and RG 23-14-298. If these lines were not staked to prevent movement then vegetation could be crushed by the lines.

Soil could be lost and/or damaged during the life of the project due to erosion, mixing of soil horizons, compaction, degradation during storage, and/or contamination. Limiting factors affecting re-vegetation success for affected soils could be exacerbated by operational activities and inadvertently by livestock grazing on unfenced reclaimed areas. The surrounding vegetation has potential to be affected by dust deposited from passing vehicles reducing its health, vigor, and palatability to wildlife and livestock. However, in the design features the operator has committed to dust abatement measures during construction, which would reduce the effects of dust on vegetation.

Noxious/invasive plant species could become an increased component of the plant community due to ground disturbance and seed dispersing activity in the area. Cheatgrass could be particularly problematic, as this species is capable of invading a variety of habitats, often becoming a dominant species. Cheatgrass is only palatable as a forage source for wildlife and livestock for a short portion of the growing season. Cheatgrass displaces more desirable and palatable native plant species.

Cumulative Impacts

The proposed construction of the RG 13-13-298 well pad and the associated infrastructure (access road and pipeline), when added to other projects and developments, in and near the project area, as well as within the Piceance Basin as a whole, would result in an increase in short-term removal of existing vegetation on public land. Long term changes in plant community composition and structure would also occur on those project sites and on a broader scale. Of the total potential vegetation removal near the project area and the Piceance Basin, the proposed project would not result in a noteworthy increase in vegetation disturbance or long-term changes in plant community.

5.7.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

Denial of the Proposed Action would result in no additional direct or indirect impacts to vegetation in association with the proposed pad and its associated infrastructure.

Cumulative Impacts

Denial of the Proposed Action would have little impact on the cumulative effects of oil and gas development impacts to the vegetative communities in the Black Sulphur/Ryan Gulch area or in the Piceance Basin as a whole.

5.7.4. Mitigation Measures and Residual Impacts

1. For interim reclamation, the BLM recommends Seed Mix #3, outlined in **Table Table** . It is recommended that seeding occur between September 1 and March 31. If an alternate date of seeding is requested, contact the designated Natural Resource Specialist prior to seeding for approval. Drill seeding is the preferred method of application and drill seeding depth must be no greater than ½ inch. If drill seeding cannot be accomplished, seed should be broadcast at double the rate used for drill seeding, and harrowed into the soil. Final reclamation will be completed using the reclamation practices and seed mixes recommended at that time.

Table 5. Seed Mix 3 for Interim Reclamation of the 13-13-298 well pad

| Cultivar | Common Name | Scientific Name | Application Rate (lbs PLS/acre) |
|-------------|-------------------------|--|---------------------------------|
| Rosana | Western Wheatgrass | <i>Pascopyrum smithii</i> | 4 |
| Whitmar | Bluebunch Wheatgrass | <i>Pseudoroegneria spicata</i> ssp. <i>Inermis</i> | 3.5 |
| Rimrock | Indian Ricegrass | <i>Achnatherum hymenoides</i> | 3 |
| | Needle and Thread Grass | <i>Hesperostipa comata</i> ssp. <i>comata</i> | 2.5 |
| Maple Grove | Lewis Flax | <i>Linum lewisii</i> | 1 |
| | Scarlet Globemallow | <i>Sphaeralcea coccinea</i> | 0.5 |

2. To reduce erosion and reduce the risk of weed establishment, interim reclamation will be initiated when either there are no drilling activities expected on the pad for the next six months or there has been no activity on the pad within the last six months, regardless of whether or not there are outstanding approved APDs.
3. The maximum extent of disturbance for the wellpad (i.e., the well pad footprint) will be fenced. Fencing should remain in place through successful interim reclamation and again through successful final reclamation to promote re-vegetation and reduce weeds. Fences, cattleguards, and gates (all built to BLM specification per BLM manual H-1741-1 (see below)) will be installed, maintained, and removed by the operator upon approval by the AO. The fence around the pad must also have a wire gate installed adjacent to the cattleguard or at another appropriate location to be used in the case of livestock becoming entrapped inside the pad area. As part of final abandonment the fence around this pad will be removed.

The fence constructed around the well pad will be a BLM Type D 4-wire fence with the following specifications:

- a) 42 inches tall between the soil surface and top wire
 - b) 14 inches between the soil surface and bottom wire
 - c) 10 inches between the top wire and next wire below
 - d) 9 inch spacing on the middle two wires
4. All seed tags will be submitted via Sundry Notice (SN) to the designated Natural Resource Specialist within 14 calendar days from the time the seeding activities have ended. The SN will include the purpose of the seeding activity (i.e., seeding well pad, cut and fill slopes, seeding pipeline corridor, etc.). In addition, the SN will include the well or well pad number associated with the seeding activity, if applicable, the name of the contractor that performed the work, his/her phone number, the method used to apply the seed (e.g., broadcast, hydro-seeded, drilled), whether the seeding activity represents interim or final reclamation, the total acres seeded, an attached map that clearly identifies all disturbed areas that were seeded, and the date the seed was applied.
 5. Each year by January 1st, WPX will submit a Reclamation Status Report to the WRFO that includes the well number, API number, legal description, UTM coordinates, project description (e.g., well pad, pipeline, etc.), reclamation status (e.g., interim or final), whether the well pad and/or pipeline has been re-vegetated and/or re-contoured, date seeded, photos of the reclaimed site, acres seeded, seeding method (e.g., broadcast, drilled, hydro-seeded, etc.), and contact information for the person responsible for developing the report. The report will include maps showing each point (i.e., well pad), polygon, and/or polyline (i.e., pipeline) feature that was included in the report. The data must be submitted in UTM Zone 13N, NAD 83, in units of meters. In addition, scanned copies of seed tags that accompanied the seed bags will be included with the report. Internal and external review of the WRFO Reclamation Status Report and the process used to acquire the necessary information will be conducted annually, and new information or changes in the reporting process will be incorporated into the report.
 6. The operator must meet the following reclamation success criteria, and these standards apply to both interim and final reclamation:

- a) Self-sustaining desirable vegetative groundcover consistent with the site Desired Plant Community (DPC) (as defined by the range site, WRFO Assessment, Inventory, and Monitoring (AIM) protocol site data (BLM TN 440), ecological site or an associated approved reference site) is adequately established, as described below, on disturbed surfaces to stabilize soils through the life of the project.
 - b) Vegetation with 80 percent similarity of desired foliar cover, bare ground, and shrub and/or forb density in relation to the identified DPC. Vegetative cover values for woodland or shrubland sites are based on the capability of those sites in an herbaceous state.
 - c) The resulting plant community must have composition of at least five desirable plant species, and no one species may exceed 70 percent relative cover to ensure that site species diversity is achieved. Desirable species may include native species from the surrounding site, species listed in the range/ecological site description, AIM data, reference site, or species from the BLM approved seed mix. If non-prescribed or unauthorized plant species (e.g., yellow sweetclover, *Melilotus officinalis*) appear in the reclamation site, BLM may require their removal.
 - d) Bare ground does not exceed the AIM data, range site description, or if not described, bare ground will not exceed that of a representative undisturbed DPC meeting the Colorado Public Land Health Standards.
7. BLM will require the three 4.5-inch temporary surface frac lines that run from the proposed pad to RG 23-14-298 be placed in the bar ditch and staked to limit movement of the three proposed lines.

Residual Impacts: The recommended fence to be built around the pad location after reclamation has the potential to affect wildlife in the general area. At this time, fencing in the area is mostly allotment pasture fences and private property boundary fences. Thus, the pad fencing would be unfamiliar to the wildlife for some time. However, the fence design for the well pad would take into account wildlife.

5.8. Invasive, Non-Native Species

5.8.1. Affected Environment

There were no noxious weeds noted at the proposed pad location during the on-site inspection. The applicant performed a survey for the presence of special status plant species, as well as noxious/invasive species in May 2013; the only noxious or invasive species found during this survey was cheatgrass (*Bromus tectorum*) (WestWater 2014). There are few noxious weeds in the general area of the proposed pad. There is a scattering of common mullein (*Verbascum thapsus*) and cheatgrass throughout the general area, especially in disturbed sites and along roadways. In the last several years, Russian thistle is becoming more prevalent in the general Piceance area. Russian thistle is also associated with and readily establishes in soil disturbances. Overall, the area surrounding the Proposed Action is relatively free of invasive, non-native plant species. However, there are numerous other weed species that occur in the general Piceance area that can spread readily in new disturbances.

5.8.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

The disturbance associated with the Proposed Action could create new noxious weed infestations by importing weed seed on vehicles and equipment or by having suitable conditions present (non-vegetated disturbed areas) for introduction of noxious weeds by other vectors (i.e. wildlife or livestock). In addition to noxious weeds, invasive non-native species such as Cheatgrass, which is already present in the area, could also establish on these new disturbed areas. Increased weed seed production and presence of noxious or invasive plants could aggressively compete with or exclude desired vegetation during interim and final reclamation. If not controlled, new infestations of weeds could result in the spread of these undesirables into the adjacent native plant communities.

Cumulative Impacts

Noxious and invasive weeds present in the general area are primarily associated with existing areas of development/disturbance and livestock grazing. Further development actions associated with the Proposed Action would create additional opportunity for noxious/invasive weed establishment. Existing roads, development and livestock grazing throughout the general area are common sources of weeds, so elimination of these species from the general area is unlikely. The extent of infestation and persistence of weeds would be dependent on monitoring and treatment as part of future projects and activities in the general Piceance Creek area. Proposed mitigation, including long term weed control, would reduce the likelihood of long term negative impacts associated with this Proposed Action.

5.8.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

Noxious and invasive plants would continue to be present within the vicinity of the proposed development and, depending on the aggressiveness of weed treatment activities, may continue to spread.

Cumulative Impacts

Cumulative effects would be similar to those from the Proposed Action.

5.8.4. Mitigation Measures and Residual Impacts

In addition to the weed detection and control measures identified by the applicant in the surface use plan (SUPO), the following mitigation should be applied:

1. All equipment that may act as a vector for weeds must be cleaned before entering the project area.
2. Application of herbicides must comply with the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (EIS), and the WRFO Integrated Weed Management Plan (DOI-BLM-CO-110-2010-0005-EA).

3. All seed, straw, mulch, or other vegetative material to be used on BLM lands will comply with United States Department of Agriculture (USDA) state noxious weed seed requirements and must be certified by a qualified Federal, State, or county office as free of noxious weeds. Any seed lot with test results showing presence of State of Colorado A or B list species will be rejected in its entirety and a new tested lot will be used instead. All areas identified to be disturbed under this proposal will be monitored and treated for noxious weeds on an annual basis for the life of the project until Final Abandonment has been approved by the Authorized Officer.
4. Pesticide Use Proposals (PUPs) must be submitted to and approved by the BLM before applying herbicides on BLM lands. The PUP will include target weed species, the herbicides to be used, application rates and timeframes, estimated acres to be treated, as well as maps depicting the areas to be treated and known locations of weeds. The WRFO recommends that all PUPs be submitted no later than March 1st of the year anticipating herbicide application.

Residual Impacts: There would be no residual impacts known at this time.

5.9. Migratory Birds

5.9.1. Affected Environment

Breeding birds associated with the project area's woodlands and sagebrush shrublands nest principally from mid-May through mid-July with an estimated overall nest density of 0.5 to 1 nest per acre. Birds that have been categorized with higher levels of management attention include Brewer's sparrow (BLM Sensitive), green-tailed towhee and vesper sparrow (BLM Priority) in sagebrush habitats, and juniper titmouse and pinyon jay (FWS Birds of Conservation Concern) and black-throated gray warbler (BLM Priority) in pinyon-juniper woodlands. Although these birds are common and widely distributed throughout the Piceance Basin and northwest Colorado, the abundance and richness of both woodland and shrubland associated birds are substantially reduced in late seral sagebrush steppe habitats where young pinyon-juniper regeneration is expressed (i.e., encroachment) in former fire disclimax shrublands (providing marginal habitat for either group).

Younger-aged woodlands, even when approaching mature height and density, tend to support lower abundance, and, fewer of those species occurring in woodlands with better developed understories and more structurally complex canopies. In particular, stands that possess a substantial mature tree component, provides the spreading crowns, open subcanopy, and larger diameter substrate important in the support of many of the most prominent pinyon-juniper associates, especially primary and secondary cavity nesting species (e.g., woodpeckers, nuthatches, chickadees, wrens, titmice, bluebirds, and small owls) and such species as black-throated gray warbler, hermit thrush, plumbeous vireo, jays, swallows, Cooper's hawk, long-eared owl, common nighthawk, and dusky and gray flycatchers.

Breeding bird habitat that would be affected by the Proposed Action is relatively uniform and consists principally of a former sagebrush-dominated fire-disclimax community that has become

entirely involved with variable density young or submature (i.e., first generation) pinyon-juniper trees. Older, more densely-canopied woodlands are distributed sporadically along the margins of this ridgeline park (~30 acres), but are relatively small (2-3 acres) and confined to ridge slope positions. Woodland encroachment is considered substantial enough to substantially reduce the density and composition of the breeding bird communities associated with each type. Breeding birds most common in these transitional types tend to be dominated by shrubland/woodland generalists such as spotted towhee, blue-gray gnatcatcher, and chipping sparrow. With the possible exception of Brewer's sparrow, birds of higher conservation concern are generally not absent in these transitional states, but they likely appear at densities less than half that of more optimal sagebrush steppe or mature pinyon-juniper woodland habitats.

5.9.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

Migratory birds respond to disturbance by avoiding habitat closely associated with human activity. Migratory bird nest densities within 100 meters of travelled roads in sagebrush habitats have been found to support about half the density of nests in habitat more distant from roads. Nesting birds likely react in a similar manner to drilling and completion activity and, to a lesser extent, through the productive life of the location. Disuse of habitat adjacent to development activity represents an effective reduction in the availability of habitat for nesting and recruitment of young into the population. Contrary to the more prolonged effects of adverse habitat modification, however, there is no strong evidence to suggest that habitats vacated by birds intolerant of disturbance would not regain much of their former utility once intense activity subsides (Riffell et al. 1996).

Because migratory birds are relatively abundant and well-distributed across the WRFO during the nesting season, it is considered impractical for vegetation clearing or dirt work to avoid ongoing nest attempts from May 15 through July 15 (i.e., futile to employ siting adjustments to avoid nests). Although development activities that occur during the core nesting season would not affect adult birds, direct destruction of nests or disturbances that lead to inopportune absences of brooding adults result in mortality of eggs or nestlings and the likely loss of that year's breeding effort. Based on the applicant's anticipated 16-month development sequence, operations would extend continuously from September 2015 to December 2016. Assuming this schedule remains accurate, no nest destruction or adverse disruption of ongoing nest activity would be attributable to this location. Direct habitat disturbance would occur after completion of the 2015 nest season and, although extending through the 2016 nest season, subsequent territory occupation and nest site selection would presumably reflect species and individual pairs' tolerance for ongoing development activity.

Project-wide vegetation clearing and facility/feature siting would involve about 10 acres of conifer-encroached sagebrush shrubland. Over the life of the wells, this acreage would be converted to either industrial use or a reclaimed herbaceous community. Except for reclaimed ground cover that would suffice for ground-nesting birds (e.g., western meadowlark, vesper and lark sparrow), there would be little redevelopment of nesting substrate for woodland or shrubland associates over the operational life of the location. An additional 12 acres of encroached

shrubland and 13 acres of pinyon-juniper woodland would be subject to disturbance capable of influencing nest site selection and reducing nest densities.

The character of former disclimax shrubland habitat in the project area, however, supports lesser nest densities and species richness (e.g., about 50 percent of optimal in conifer-encroached sagebrush and near existing permanent sources of disturbance). Facility occupation and vegetation clearing in this suboptimal habitat would reduce the severity of shorter-term avoidance-related effects and longer term habitat-related effects. Discounting the effects of suboptimal habitat and proximity to established well access roads, it is estimated that the total effective reduction in habitat for the Proposed Action would be roughly equivalent to 11 acres of sagebrush and 13 acres of woodland (see Table 6). This habitat acreage would be expected to support up to two dozen pairs of migratory birds during the nesting season, represented largely by common, widely distributed species and involving no more than one nesting pair of Brewer’s sparrow and/or juniper titmice. Although residual effects would persist over the life of the wells, avoidance response would be expected to diminish as development activity and traffic levels subside through the production phase. In the longer term, reclaimed acreage would become recolonized by sagebrush with the potential to offer habitat better suited to the support of sagebrush obligates (i.e., absent encroaching conifers).

Table 6. Summary of direct and indirect migratory bird nest habitat that will be affected if the Proposed Action is implemented

| Location Number | Direct ¹ and indirect ² loss of migratory bird nest habitat or production (estimated acres affected worst-case) | | | | | |
|--|---|----------|-------|-----------------------------|----------|-------|
| | Encroached sagebrush steppe | | | pinyon-juniper nest habitat | | |
| | direct | indirect | total | direct | indirect | total |
| RG 13-13-298 | 10 | 12 | 22 | 0 | 13 | 13 |
| Effective acre Equivalent ³ | 5 | 6 | 11 | -- | 13 | 13 |

¹(vegetation clearing/facility occupation, nest destruction)

²(adverse disruption of incubation or brooding activities)

³considering constraints on nest habitat utility or suitability during initial year, including suboptimal habitat and proximity to existing forms of disturbance, e.g., county road corridors

Cumulative Impacts

Although adverse effects on nest habitat attributable to this project would be less pronounced in light of site-specific circumstances, the Proposed Action would contribute incrementally to long-term habitat modification and disturbance-induced disuse of nesting habitat associated with fluid mineral development in the Piceance Basin. Based on projections in the Oil and Gas Development Proposed RMP Amendment/FEIS, migratory bird effects attributable to the Proposed Action would be integral with effective habitat losses on the order of five or six percent in the Piceance Basin. This project would have no measurable influence on the distribution or abundance of breeding birds at any landscape scale.

5.9.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

There would be no physical or behavioral influences imposed on migratory bird nesting habitat or activity.

Cumulative Impacts

Minor contributions to habitat modification and disturbance of migratory bird nesting activity would be avoided, but the effects of this reservation would yield no tangible benefit to the distribution or abundance of breeding birds in the Piceance Basin.

5.9.4. Mitigation Measures and Residual Impacts

1. Vegetation clearing associated with the Proposed Action should be completed prior to May 15 or after July 15 to minimize or avoid egg or nestling mortality associated with migratory bird nesting efforts.

Scheduled development of this well would not coincide with the migratory bird nesting season. This mitigation would be applicable if proposed scheduling was deferred and were to involve the core nesting season (15 May to 15 July). The mitigation would require avoidance of the core nesting season and, as such, the impacts would be identical to those presented for the Proposed Action.

5.10. Terrestrial Wildlife

5.10.1. Affected Environment

The proposed project is located in big game general winter range, but is closely associated with severe winter range (within 0.5 mile), as mapped by CPW. Big game use is most prevalent on this site from October through April. Project access, although making long traverse of severe winter range, is largely confined to existing disturbance corridors associated with major county roads. The project site is composed of fire-disclimax sagebrush and mixed shrub communities that have become substantially encroached by pinyon-juniper regeneration.

Woodland stands that would be directly influenced by proposed facilities are composed of open-canopied and regenerating stands in a shrubland matrix that do not represent habitat conditions well suited to the support of woodland raptor nesting. Mature woodland tracts within 0.25 mile of proposed project activity were surveyed for raptor nesting activity in July 2013 and no indications of past or current nest activity were found. WRFO has older record of two woodland raptor nests within 0.25 mile of the proposed location. Although recent surveys indicate these nests sites have become dilapidated, strong defensive behavior noted by a Cooper's hawk very near an historic nest site about 1,400 feet (0.27 mile) from nearest project-related activity suggests this nest territory remains occupied (i.e., nest greater than 0.25 mile from project work).

5.10.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

The Proposed Action would increase the frequency of vehicle traffic for two or more years along 3.2 miles of long-established travel corridors through big game winter ranges. The location would require little additional access (0.35 mile) and it is unlikely that additional traffic or the additions to the road network would substantially elevate current levels or expanse of road-related big game avoidance and habitat disuse. The large number of wells that are proposed for this location would yield a number of offsetting advantages in terms of big game habitat and population effects, including: reducing the number of pads and the potential need for a more complex and expansive access network, increased efficiency of bringing these wells into production (shorter duration of disturbance), and reduced the amount of surface dedicated to industrial needs.

The project would require vegetation removal on about 10 acres of fire-disclimax sagebrush shrubland that has become substantially encroached by pinyon-juniper regeneration. Interim reclamation would be applied to about 70 percent of surface disturbance soon after well development, which would recoup most, if not all, the herbaceous production lost to initial clearing. Sagebrush would eventually recolonize these reclaimed lands, but woody forage loss attributable to clearing would be expected to persist on disturbed lands for 15 to 30 years (decades longer on 3 acres occupied by facilities). Relative to local availability of woody forage, this reduction in forage availability would be minor. The relatively large number of wells drilled from each pad would drain considerable mineral estate and offset the additional acreage disturbed and the additional sources of surface and behavioral disturbance (including an expanded road system) that more conventional drilling practices would entail.

There is a minimum 0.25 mile of intervening woodlands that separate the proposed project activity from the nearest indications of raptor nest activity, and removal of trees from the project site does not involve reductions in the overall expanse or interruptions in the continuity of suitable woodland nest cover. It is unlikely that project implementation would have any measurable influence on this pair of breeding birds, much less breeding populations of woodland raptor at the watershed or basin-wide scales.

Cumulative Impacts

The proposed project would contribute incrementally to habitat and behavioral impacts imposed on big game in the Piceance Basin. Based on projections in the Oil and Gas Development Proposed RMP Amendment/FEIS, big game effects attributable to the Proposed Action would be integral with total effective habitat losses on the order of 14 percent in the Piceance Basin. Conversion of early seral woodlands to their former sagebrush character would have no cumulative effect on the availability or utility of woodland raptor habitat.

5.10.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

None.

Cumulative Impacts

None.

5.10.4. Mitigation Measures and Residual Impacts

No mitigation measures are warranted.

The residual impacts would be the incremental contribution to habitat and behavioral impacts imposed on big game in the Piceance Basin.

5.11. Special Status Animal Species

5.11.1. Affected Environment

There is no habitat known within the immediate influence of the proposed project that is suitable to the support of the following BLM-sensitive species: Townsend's big-eared bat, fringed myotis, Great Basin spadefoot, fish and amphibians associated with wetland habitats (see also Section 4.2, Wetlands and Riparian Zones and Aquatic Wildlife), and midget faded rattlesnake.

The White River below Rio Blanco Lake is designated Critical Habitat for the Colorado pikeminnow. Occupied habitat is currently relegated to the reach below Taylor Draw dam, about 44 river miles downstream of the mouth of Piceance Creek. The land associated with the Proposed Action drains to Ryan Gulch, whose mouth is 22 channel miles upstream of Piceance Creek's confluence with the White River (see also Section 4.2, Wetlands and Riparian Zones).

Although woodland-nesting raptors occur in surrounding habitat, the younger, open-canopied stands that characterize the immediate project vicinity are unlikely to support nesting by northern goshawk, which typically prefer more continuous, higher canopy density stands with more mature branch structure. No raptor nesting activity was detected within 0.25-mile of the project boundary during raptor nest inventories conducted consistent with WRFO protocols in late summer 2013. The project area is separated from the nearest Colorado Parks and Wildlife (CPW) mapped greater sage-grouse habitat by over 7 miles. Although the project site appears to involve a conifer-encroached fire-disclimax Wyoming big sagebrush park, the area does not appear contiguous with the current or historic habitat base (i.e., intervening woodlands) and is generally lower in elevation (6,700 feet) than the lower margin of preferred habitats in the Parachute-Piceance-Roan (PPR) population area (~7,000 feet).

BLM-sensitive migratory birds are addressed in the Migratory Birds section.

5.11.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

In May 2008, the BLM prepared a Programmatic Biological Assessment (PBA) that addressed water depleting activities associated with the BLM's fluid minerals program in the Colorado River Basin in Colorado. This assessment addressed water used for dust abatement, well drilling and completions, and hydrostatic testing of pipelines associated with field gathering systems. The PBA concluded that water depletions authorized by the BLM for its fluid mineral program were likely to result in adverse modification of critical habitat for the Colorado pikeminnow and downstream habitats of humpback chub, bonytail, and razorback sucker. The BLM recognized that further reductions in flow increase the likelihood of water quality concerns (dilution factor) and are likely to contribute to adverse modifications of the channel's functional structure. Altered flow regimes attributable to depletions can reduce the availability (frequency and duration of access) of important channel and floodplain features for foraging and forage production, have important influences on the maintenance and continued availability of important bank and floodplain features, and promote conditions that favor the proliferation of competitive introduced fish.

In response to the BLM's PBA, the FWS issued a Programmatic Biological Opinion on December 19, 2008, which determined that the BLM water depletions from the Colorado River Basin are not likely to jeopardize the continued existence of the Colorado pikeminnow, humpback chub, bonytail, or razorback sucker, and that the BLM water depletions are not likely to destroy or adversely modify designated critical habitat. Water use attributable to proposed oil and gas development (4.4 cubic feet per second) was generally expected to result in modest flow reductions in the White River (3 percent of baseflow, 0.3 percent of spring flow). These reductions are not expected to have measurable effect on pikeminnow populations in the White River except during exceptionally dry years when fish passage through shallow riffle areas may be temporarily interrupted.

A Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin was initiated in January 1988. The Recovery Program serves as the reasonable and prudent alternative to avoid jeopardy and provide recovery to the endangered fishes by depletions from the Colorado River Basin. The PBO includes reasonable and prudent alternatives developed by the FWS which allows the BLM to authorize oil and gas wells that result in water depletion while avoiding the likelihood of jeopardy to the endangered fishes, and avoiding destruction or adverse modification of their critical habitat. As a reasonable and prudent alternative in the PBO, the FWS authorized the BLM to solicit a one-time contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in the amount equal to the average annual acre-feet depleted by fluid minerals activities on BLM lands. Water use attributable to these wells will be included in an annual report to the FWS through the BLM Colorado State Office.

Cumulative Impacts

Incremental flow depletions from the Upper Colorado River system contribute to cumulative reductions in flow volume that affect seasonal fluctuations in flow, water quality, and channel/floodplain structure as important determinants of endangered fish habitat. The consequences of average annual depletion attributable to these wells have been considered in the context of projected basin-wide water use in previous Section 7 consultations with the FWS (see discussion in section 5.11.2). Annual contributions to cumulative depletion attributable to these wells would be entered and tracked in an annual report to the FWS through the BLM Colorado State Office.

5.11.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

None.

Cumulative Impacts

None.

5.11.4. Mitigation Measures and Residual Impacts

No mitigation would be imposed specific to the implementation of this individual project. However, oil and gas development in the WRFO was subject to programmatic section 7 consultation that resulted in a conservation measure (i.e., monetary contributions to help fund the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (see discussion in 5.11.2) that allowed the BLM to authorize oil and gas development that results in cumulative water depletions, while avoiding the likelihood of jeopardy to the endangered fishes, avoiding destruction or adverse modification of their critical habitat, and providing a means to recover endangered fishes of the Colorado River Basin. Water use attributable to these wells will be included in an annual report to the FWS through the BLM Colorado State Office.

5.12. Cultural Resources

5.12.1. Affected Environment

The area of the proposed well pad and pipeline have been inventoried at the Class III (100 percent pedestrian) level (Conner and Huei 2013 compliance dated 11/25/2013, Conner *et al.* 2013 compliance dated 12/18/2013), which resulted in the identification of two resources within the projects Area of Potential Effect. One site is considered to be an open camp and likely was a wickiup site, but the wickiup poles have been used as firewood for more modern activities in the general area (Conner and Huei 2013). The second site is an old two track road that may have followed an older Ute trail (Conner *et al.* 2013).

5.12.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

As originally designed, the access road to the well pad would have directly impacted the camp/wickiup site, very likely obliterating the site. As redesigned, the access road and well tie pipelines would be routed away from the site to the west by approximately 90 meters. The older two track road would be closed at each end to protect the camp site. The two track road would be upgraded along two short portions south of the well pad to provide access. These upgraded sections represent less than one percent of the total recorded road route and would be considered non-contributing segments of the entire recorded length of the two track route.

Cumulative Impacts

The project would result in the upgrading of less than 300 feet of older, historic route out of a currently unknown number of miles of historic two tracks and roads in the field office.

The camp site would not be directly impacted by any construction activity; however, the increased activity in the area due to drilling and the improved access to the area as a result of upgrading an access route to the well pad, along with the necessary well tie pipelines, could potentially result in increased human activity in the area, which might include an increase in unlawful surface collection of artifacts from the site.

The cumulative impact to cultural resources would be approximately an additional acre of disturbance to cultural resources within the MPA area.

5.12.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

There would be no new construction-related impacts to any cultural resource in the MPA under the No Action Alternative. Some human activity in the area such as recreational hunting and firewood collecting would continue in the project area. Further, the slow natural erosional processes that have been occurring for centuries would also continue, resulting in some loss of site integrity in the area.

Cumulative Impacts

Some unquantifiable loss of artifacts and archaeological contexts would continue, resulting in an additive loss of data from the regional archaeological database.

5.12.4. Mitigation Measures and Residual Impacts

1. An Archaeological monitor must be present during all construction activities related to access road and well tie pipeline construction to ensure that site 5RB.448 is avoided by the construction activities.

See design features in Section 3.1.3 above.

Residual Impacts: Some loss of archaeological data due to erosion and unlawful collection as a result of improved access and human activity in the area would likely continue.

5.13. Paleontological Resources

5.13.1. Affected Environment

The Proposed Action is located in an area generally mapped as the Uinta Formation (Tweto 1979), which the BLM has categorized as a Potential Fossil Yield Classification (PFYC) 5 formation - indicating it is known to produce scientifically noteworthy and significant fossil resources (c Armstrong and Wolny 1989, Bilbey *et al.* 2010).

5.13.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

If it becomes necessary to excavate into the underlying sedimentary rock formation at any time to level the well pad, excavate any reserve/blooiie/cuttings pits, level the access road or bury any of the well tie pipelines, there is a high potential to impact scientifically noteworthy fossil specimens and resources. Direct impacts would include crushing of fossils with construction equipment, dislocation of fossils from their context in the formation, breaking of larger fossils and loss of contextual information regarding the depositional and paleo-environment associated with the fossil resources.

Indirect impacts could include increased erosion of disturbed areas, which could expose fossils to accelerated weathering or unauthorized collection. Smaller fossils, being more fragile, could be seriously damaged by erosion where the fossils are carried by water which would tumble them, removing diagnostic features and eventually totally destroying the fossils. Larger fossils would be exposed and gradually weathered and slowly destroyed as the fossils deteriorate and are washed away by erosion. Unauthorized collection could increase as access into the area is improved and there would be an increase in human activity in the area.

Cumulative Impacts

There is a potential to impact up to 9.4 acres of the Uinta Formation. This would be in addition to the already impacted acreage in the Uinta formation. It could also result in the loss of an unknown number of fossil resources as a result of direct and indirect impacts. These would represent a net permanent, long term, irreversible and irretrievable loss of data from the regional paleontological database.

5.13.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

There would be no new construction-related impacts to fossil resources under the No Action Alternative. However, the normal weathering processes that are currently occurring would continue as they have for millennia, which are not considered unacceptable at the present time. Some unauthorized collection may be occurring, but is currently not quantifiable.

Cumulative Impacts

Under the No Action Alternative, some slow naturally-occurring loss of resources due to erosion, along with an unquantifiable loss to unauthorized collection, would result in an unknown, and difficult to quantify loss of scientific data, particularly data related to the smaller more fragile fossils that are likely present in the area.

5.13.4. Mitigation Measures and Residual Impacts

1. Any excavations into the underlying native sedimentary rock must be monitored by a permitted paleontologist. The monitoring paleontologist must be present before the start of excavations that may impact bedrock.

Residual Impacts: Residual impacts constitute the loss of any paleo-environmental data and smaller fossils that are lost either through weathering and erosion, unlawful collection or any data not recovered during the construction process. Erosional losses are likely to occur whether the project is approved or not.

5.14. Visual Resources

5.14.1. Affected Environment

Visual resources are the visible physical features of a landscape that convey scenic value. The BLM developed the Visual Resource Management system to identify and evaluate an area's scenic value. The visual resource inventory (VRI) process described in BLM Manual H-8410-1 establishes VRI classes, which are used to assess visual values for areas of the landscape. VRI classes II, III, and IV are determined by using a combination of three components: scenic quality, sensitivity level, and distance zones, with Class II having a higher level of value and Class IV having the least visual value. VRI Class I areas are assigned to special management areas, such as Wilderness Study Areas, which are the most valued landscapes. The VRI classes are the baseline from which environmental effects are measured. The Proposed Action is located in Visual Resource Inventory Class IV. The area of the landscape where the Proposed Action is located was placed into VRI Class IV as a result of a composite of the three above mentioned components. The area received a low Scenic Quality scoring of C (A, B, and C type rating). The Sensitivity Level rating was identified as moderate value to the public, and the project is proposed to be located in a Distance Zone of Background.

The BLM also maintains four Visual Resource Management (VRM) classes used to describe the level of acceptable change allowable at a given location. Scenic values in the BLM White River Resource Area have been classified according to the Visual Resource Management (VRM) system into four Visual Resource Management Classes (I-IV), and corresponding VRM objectives were established in the 1997 White River ROD/RMP. VRM Class I are the most restrictive, with VRM Class IV being the least restrictive for the amount of allowable change to occur on the landscape. The Proposed Action is located within a VRM Class III area. The objective of the VRM III classification is to partially retain the existing character of the landscape. The level of change to the characteristic landscape in VRM III areas should be moderate. Management activities may attract attention, but should not dominate the view of the

casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

The Proposed Actions would not be visible to a casual observer traveling along RBC 5 (Piceance Creek), RBC 26 (Black Sulphur), or RBC 24 (Ryan Gulch), which would be the paved/graveled routes in the area most frequently utilized by a casual observer. The majority of the traffic in the area of the Proposed Action would be energy related personnel, with occasional ranchers and seasonal big game hunters traveling along some of the dirt roads in the area. The wells could be seen for short periods of time, but would not dominate the view. The wells would be located in stands of pinyon/juniper with scattered pinyon/juniper in the back drop.

5.14.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

The construction of the well pads, pipeline, and access road includes a total of approximately 9.4 acres of ground disturbance for the initial construction period. The exposed soils created by this construction activity and associated linear road and pipeline disturbance would create short term moderate impacts to the landscape characteristics from the construction start until interim reclamation. Upon completing interim reclamation, areas of exposed soils would be reduced and other formerly-disturbed acres would then have some vegetation growing. In areas that had pinyon and juniper woodlands removed during well pad construction, the visual impact of contrasting vegetation of grass and soils with adjacent woodlands could be somewhat noticeable for several decades and slowly blend with the landscape over time. The unnatural shape and color contrast of all above ground structures could cause moderate long term impacts to casual observers, if not mitigated. To reduce this impact, all permanent above ground structures (on-site for six months or longer) including tanks, associated production equipment, and any piping and valves be painted Juniper Green, according to the BLM Standard Environmental Chart CC-001: June 2008. This color should best serve to blend these structures with the pinyon-juniper trees that surround the proposed well pad locations. Overall, the implementation of the Proposed Action would not change the Visual Resource Inventory Class IV rating and would meet the Visual Resource Management class III objective of partially retaining the existing character of the landscape in this area.

Cumulative Impacts

Combined with other existing, ongoing, and foreseeable oil and gas development and mining development activities in the area, the Proposed Action could begin to contribute to an increasingly impacted visual landscape.

5.14.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

By not implementing the Proposed Action, there would be no new impacts to visual resources or casual observers in this area and there would be no changes to visual resource inventory class ratings.

Cumulative Impacts

None have been identified as a result of this alternative.

5.14.4. Mitigation Measures and Residual Impacts

1. Paint and maintain the paint on all permanent above ground structures (on-site for six months or longer) including tanks, associated production equipment, and any piping and valves be painted, Juniper Green according to the BLM Standard Environmental Chart CC-001: June 2008.

Residual Impacts: Even after the life of the well and final reclamation, there would still be minor visual impacts until the pinyon juniper woodlands re-established.

5.15. Livestock Grazing

5.15.1. Affected Environment

The Proposed Action occurs in the S. Ryan pasture of the Square S Allotment (#06027). The total allotment consists of 75,739 acres, including 64,050 federal acres, 9,437 State of Colorado acres, and 2,252 private acres. The Square S allotment is permitted to both the LOV Ranch (Authorization #504241) and the Mantle Ranch (Authorization #501432) for livestock grazing, totaling 3,522 AUMs. The Mantle Ranch is the permittee who utilizes the S. Ryan pasture, typically during the fall. Rangeland carrying capacity is typically estimated on the basis of the Animal Unit Month (AUM). The AUM is defined as the amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month (43 CFR 4100.0-5).

Rangeland Improvements: There is an allotment boundary fence that passes through the area south of the proposed well pad and access road.

There are no range trend monitoring sites nearby that would be affected by the implementation of the Proposed Action.

5.15.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

Livestock grazing during the authorized periods of use would continue throughout the duration of the project. The primary impact to the grazing resource would be short-term loss of available forage as a result of construction-related disturbance. In addition to direct forage loss, livestock are likely to avoid grazing in areas close to active construction and drilling due to noise and increased activity. During this period there would be an increased risk of injury to livestock. After construction is complete, livestock would likely be minimally affected or even unaffected by the presence of production facilities.

Implementation of the Proposed Action could interfere with proper functioning of the range improvement near the proposed well pad. The fence in this area is necessary for control of cattle to achieve grazing objectives on the grazing allotment and to keep cattle from straying between

allotments. Damage to fences could interfere with control of cattle and ultimately with proper utilization of the rangeland resource.

Construction of RG 13-13-298 well pad would remove 9.4 acres of vegetation. Until construction disturbance is successfully reclaimed and re-vegetated, there would be a short term loss of less than one AUM in the S. Ryan pasture associated with this well pad. After successful interim and final reclamation, there would likely be a slight increase in forage production until the proposed site progresses back to pinyon/juniper woodlands. The short-term forage loss within this pasture would be less than the annual fluctuation in forage production and would not be expected to result in any need for changes in livestock numbers or grazing period.

Cumulative Impacts

Agriculture, road development, and oil and gas development, which have the potential to impact livestock grazing would continue to occur. The Proposed Action would remove forage temporarily in the above mentioned grazing pasture. After project development has been completed and grass/forb communities have returned, the Proposed Action would contribute to a slight increase in forage for livestock in the area.

5.15.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

There would be no direct and/or indirect effects to livestock grazing under the No Action Alternative, and range management in the area would remain the same.

Cumulative Impacts

Activities associated with agriculture, road development, mineral extraction, and oil and gas development would continue to occur at about the current rates and intensities in the area, which has the potential to impact livestock grazing by removal of forage, impacts to range improvements, removal/damage to long term monitoring sites.

5.15.4. Mitigation Measures and Residual Impacts

1. See *Vegetation* mitigation section 5.11.3 for fence design and construction for reclamation purposes.
2. If the operator damages any range improvement project(s) (e.g. fences, gates, water development, cattleguards) the operator will notify the Authorized Officer through Sundry Notice (Form 3160-5) and identify the actions taken to repair the feature(s) promptly. Repairs must be prior to the livestock grazing permittee's need to utilize the range improvement.

Residual Impacts: There are no residual impacts known at this time.

5.16. Forestry and Woodland Products

5.16.1. Affected Environment

The Proposed Action is located within a productive exposure stand class of pinyon/juniper woodlands, as defined by a survey performed in 2003-2005 by WRFO personnel. Productive exposure types occur on primarily lower gradient slopes and on north and east aspects. Growth rates are higher in these areas, due to soil features which allow for effective use of precipitation. This habitat type is further broken down based on the age class of the stand. In this case, the affected stand is mature. Mature pinyon/juniper trees on productive exposure establish themselves as the dominant plant community on the site. Mature stands are valuable locally as a source of fire wood and craftwood.

5.16.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

Table 7 summarizes the estimated loss of woodland acres as a result of the Proposed Action. Following reclamation of the site, it is expected that pinyon and juniper would invade the site within 50-70 years and would develop a mature stand within 200-300 years. Under the Proposed Action, the RG 13-13-298 well pad would remove approximately 9.4 acres of woodlands. Impacts to the area would be long-term until woodlands are regenerated successfully back to their original state.

Table 7. Summary of estimated acres of woodland that will be removed if the Proposed Action is implemented

| Project Name | Acreage In Woodlands | | | | |
|-----------------------|----------------------|----------------------|-------------------------|---|-------------|
| | Pad Disturbance (ac) | Access Road/Pipeline | Acres Disturbed (Total) | Stand Class | Total Cords |
| RG 13-13-298 well pad | 6.76 | 2.64 | 9.4 | Pinyon Juniper Productive Mature | 47 |

Cumulative Impacts

Removal of mature and middle-aged pinyon/juniper trees would reduce the potential for outbreak of woodland diseases and pest infestations. By reducing the stand size of pinyon/juniper trees in areas included in sagebrush and grass communities, it would increase the open areas preferred as foraging areas by wildlife and livestock. Acceptance of mitigation measures would reduce the build-up of cleared woody material from the Project Area, reducing the likelihood of slash contributing to possible large fire.

5.16.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

Under this alternative, there would be no construction of a well pad or additional infrastructure (access road/pipeline) and no removal of pinyon/juniper woodlands, thus no affects to the immediate pinyon/juniper woodland environment.

Cumulative Impacts

Under this alternative, pinyon/juniper woodlands would not be removed and would continue to persist and age. The current stand contains several trees that have old growth characteristics. If this stand is not removed it would continue to age, eventually becoming a decadent old growth stand. Activities associated with road development, mineral extraction, and oil and gas development would continue to occur at about the current rates and intensities in the area, which has the potential to impact forestry by removal of woodlands.

5.16.4. Mitigation Measures and Residual Impacts

In accordance with the 1997 White River RMP/ROD, all trees removed in the process of construction will be purchased from the BLM. Trees should first be used in reclamation efforts and then any excess material made available for firewood or other uses.

1. Woody materials required for reclamation will be removed in whole with limbs intact and will be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been re-contoured and reseeded, stockpiled woody material will be scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20 percent ground cover. Limbed material will be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use. Woody materials that are to be stockpiled along margins and not used in the topsoil should not exceed pile dimensions of 8 x 8 x 8 feet. Materials used in the stockpiles should be a variety of diameters, but should be no smaller than 6 inches in diameter. Additionally the piles should be no less than 30 feet apart.
2. Trees that must be removed for construction and are not required for reclamation will be cut down to a stump height of 6 inches or less prior to other heavy equipment operation. These trees must be cut in four foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal for company use or removal by the public.

Residual Impacts: There are no residual impacts known at this time.

5.17. Recreation

5.17.1. Affected Environment

The Proposed Action occurs within the White River Extensive Recreation Management Area (ERMA). The BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing and off-highway vehicle use. The project site is located in the Recreation Opportunity Spectrum (ROS) classification area of Semi-Primitive Motorized. Areas within this classification are characterized by a largely natural appearance and are accessible by foot, horseback, bike or motor vehicle generally on native-surfaced roads or gravel. Interaction with other visitors is relatively low. There are minimum on-site controls and restrictions, and the area provides for a moderate probability of experiencing isolation, remoteness, and closeness to nature. The primary recreation activity in this area is a low amount upland big game hunting from late August through December of each year, with peak use from mid-October through mid-November. The Proposed Action is located within the Colorado Parks and Wildlife (CPW) Game Management Unit (GMU) 22 and overall is a somewhat popular big game hunting area where hunters have good opportunities to pursue both mule deer and elk. There are 15 Special Recreation Permits (SRPs) for commercially outfitting and guiding for mountain lion hunting which are permitted for all BLM lands within the WRFO.

5.17.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

Due to the Proposed Action, there would be a direct disturbance of approximately 9.4 acres of public land currently available for dispersed recreation activities during the initial construction period, which would be reduced to 2.82 acres after interim reclamation has been completed. Some displacement of recreationists may occur during construction, particularly to those seeking a more primitive-oriented backcountry recreation experience. If construction and drilling activities coincide with some of the various big game hunting seasons (late August through December), there could be a disruption to those seeking a primitive hunting experience in these localized settings during these activities. Because this proposal is located in an area within extensive public lands, it is likely that those seeking big game hunting opportunities in this area would be able to find similar hunting and camping opportunities on nearby public lands. Operational activities during the production phase would be much less disruptive to dispersed camping in the area and big game hunting. Overall, the Proposed Action would result in a relatively small impact in size and time for recreational opportunities and experiences in this area.

Cumulative Impacts

Combined with other foreseeable oil and gas development and mining development activities in the area, the Proposed Action could begin to contribute to a somewhat modified landscape with slightly reduced recreational opportunities and undesired recreational experiences, and impacts to some localized recreational settings.

5.17.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

Because the well pads, access road, and pipeline would not be constructed, there would be no new impacts to recreational opportunities and experiences as a result of this alternative.

Cumulative Impacts

None identified as a result of this alternative.

5.17.4. Mitigation Measures and Residual Impacts

None

5.18. Realty Authorizations

5.18.1. Affected Environment

The natural gas pipeline would require a right-of-way (ROW), and the temporary construction area would require a temporary use permit (TUP) because the ROW and TUP would be authorized to Bargath, LLC (a third party gathering company). The off-lease portion of the temporary surface frac lines and the RG 23-14-298 frac pad would require a ROW. No ROW would be required for the water pipeline because it is on-lease. The off-lease portion of the access road would be authorized in ROW COC67964. Table 8 describes the existing ROWs in the area of the proposed well pad, access road, and pipelines.

Table 8. Existing ROWs Near the Proposed Action

| Case File | Holder | Authorized Use |
|-----------|-------------------------------|-----------------------|
| COC63447 | Encana Oil & Gas (USA) Inc | Access road |
| COC66137 | Union Telephone Company | Access road |
| COC71172 | XTO Energy Inc | Access road |
| COC72895 | Bargath LLC | Natural gas pipelines |
| COC73348 | American Shale Oil LLC | Access road |
| COC74132 | XTO Energy Inc/Bargath LLC | Access road |
| COC74741 | WPX Energy Rocky Mountain LLC | Water pipelines |
| COC75171 | WPX Energy Rocky Mountain LLC | Water pipelines |

5.18.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

The eight-inch natural gas pipeline corridor (ROW COC77001) to serve the RG 13-13-298 well pad would be 1,880 ft long, 40 ft wide, and contain approximately 1.73 acres. An additional 20 ft width along the length of the pipeline would be needed for construction of the pipelines. The temporary use permit (TUP COC77001-01) for construction of the pipeline to serve the RG 13-13-298 well pad would be 1,880 ft long, 20 ft wide, and contain approximately 0.86 acres. The temporary use permit COC77002 for the three 4.5-inch off-lease temporary surface frac lines would be 3,960 ft long and 15 ft wide, plus use of the existing RG 23-14-298 (130 ft by 70 ft)

well pad for remote fracing during completion operations, for a total of approximately 1.57 acres. Damage to the facilities or rights of existing ROW holders could occur if construction activities are not properly planned and other ROW facilities are not properly identified prior to construction. If accurate “as built” mapping is not provided to BLM, conflicts may develop in the future with other ROW holders.

Cumulative Impacts

As the number of ROW holders in the project area increases, so would competition for suitable locations for facilities. Increased ROW densities would also lead to a higher probability of conflict between ROW users.

5.18.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

Failure to authorize the proposed project would not result in any increased impacts to realty authorizations in the area.

Cumulative Impacts

There would not be any cumulative effects from not authorizing the proposed project.

5.18.4. Mitigation Measures and Residual Impacts

1. The holder will effectively coordinate with existing ROW holders prior to construction activity.
2. The holder must provide the BLM AO with data in a format compatible with the WRFO’s ESRI ArcGIS Geographic Information System (GIS) to accurately locate and identify the ROW and all constructed infrastructure, (as-built maps) within 60 days of construction completion. Acceptable data formats are: (1) corrected global positioning system (GPS) files with sub-meter accuracy or better; (2) ESRI shapefiles or geodatabases; or at last resort, (3) AutoCAD .dwg or .dxf files. Option 2 is highly preferred. In ALL cases the data must be submitted in Universal Transverse Mercator (UTM) Zone 13N, NAD 83, in units of meters. Data may be submitted as: (1) an email attachment; or (2) on a standard compact disk (CD) in compressed (WinZip only) or uncompressed format. All data must include metadata, for each submitted layer, that conforms to the Content Standards for Digital Geospatial Metadata from the Federal Geographic Data Committee standards. Questions should be directed to WRFO BLM GIS staff at (970) 878-3800.
3. Construction activity should take place entirely within the areas authorized in the ROW grants and temporary use permit.
4. At least 90 days prior to termination of the ROW, the holder must contact the AO to arrange a joint inspection of the ROW. The inspection will result in the development of

an acceptable termination and rehabilitation plan submitted by the holder. This plan must include, but is not limited to, removal of facilities, drainage structures, and surface material (e.g., gravel or concrete), as well as final recontouring, spreading of topsoil, and seeding. The Authorized Officer must approve the plan in writing prior to the holder's commencement of any termination activities.

5. No surface disturbing activities will take place on the subject right-of-way until the associated APD is approved. The holder will adhere to special stipulations in the Surface Use Program of the approved APD, relevant to any right-of-way facilities.
6. Boundary adjustments in Oil and Gas lease/unit COC03453 will automatically amend this right-of-way to include that portion of the facility no longer contained within the above described lease/unit COC03453. In the event of an automatic amendment to this right-of-way, the prior on-lease/unit conditions of approval of this facility will not be affected even though they would now apply to facilities outside of the lease/unit as a result of a boundary adjustment. Rental fees, if appropriate will be recalculated based on the conditions of this grant and the regulations in effect at the time of an automatic amendment.
7. The holder must notify the authorized officer at least 60 days prior to non-emergency activities that would cause surface disturbance in the right-of-way. A "Notice to Proceed" will be required prior to any non-emergency activities that would cause surface disturbance on the right-of-way. Any request for a "Notice to Proceed" must be made to the authorized officer, who will review the Proposed Action for consistency with resource management concerns such as wildlife, big game winter range, paleontology, special status species, and cultural resource protection. The authorized officer may require the completion of special status species surveys or other resource surveys by a third party contractor at the expense of the holder. Additional measures may be required to protect special status species or other resources.

5.19. Hazardous or Solid Wastes

5.19.1. Affected Environment

There are no known hazardous or other solid wastes on the subject lands. No hazardous materials are known to have been used, stored, or disposed of at sites included in the project area.

5.19.2. Environmental Consequences – Proposed Action

Direct and Indirect Impacts

The proposed activities may use regulated materials and would generate some solid and sanitary wastes. The potential for harm to human health or the environment is presented by the risks associated with spills of fuel, oil and/or hazardous substances used during oil and gas operations. Other accidents and mechanical breakdowns of machinery are also possible.

The proposed activities could pose direct and indirect impacts to soil, water, air, and biological resources that occur in close proximity to individual disturbance features. Impacts to these resources could also occur at farther distances from individual disturbance features, though it is assumed that these impacts would be reduced because of proximity to the point source.

Accidents and mechanical breakdown could also have direct and indirect effects to resources, depending on the type of accidents or mechanical breakdown and when and where they occur temporally and spatially.

Cumulative Impacts

Effects to soil, water, air, and biological resources as a result of cumulative release of hazardous materials into the environment are unknown. Because some hazardous substances persist in the environment, it is reasonable to assume that multiple activities that may occur throughout the project area that result in the release of individual hazardous material spills or discharge events, could cumulatively result in impacts to soil, water, air, and biological resources. Substances used in the hydraulic fracturing process could be harmful to human health or the environment. However, freshwater-bearing formations and other resources suitable for human use or consumption are isolated from man-made materials used in oil and gas operations through the use and cementing of surface casing, see 43 CFR 3162.5-2(d).

5.19.3. Environmental Consequences – No Action Alternative

Direct and Indirect Impacts

No hazardous or other solid wastes would be generated under the No Action Alternative.

Cumulative Impacts

Cumulative effects would be the same as those analyzed in the Proposed Action in terms of the type of disturbance. In terms of duration and extent, however, this alternative would most likely result in reduced cumulative impacts because of the existing development in the project area, rather than the new proposed well pad.

5.19.4. Mitigation Measures and Residual Impacts

1. Comply with all Federal, State and/or local laws, rules, regulations, statutes, standards and implementation plans. This includes but is not limited to, Onshore Orders, Surface Use Plans, State and Rio Blanco County permits.
2. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.
3. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).

4. All substances that pose a risk of harm to human health or the environment must be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, must be stored in appropriate containers and in secondary containment systems at 110% of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries must be lined with a minimum 24 mil impermeable liner.

5. Lessee/Operators and ROW holders will report all emissions, releases, spills, leakages, blowouts, fires that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO (970) 878-3800.

6. As a reasonable and prudent lessees/operator and/or ROW holder in the oil and gas industry, acting in good faith, all lessees/operators and ROW holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or ROW holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.

Residual Impacts: Any storage on location and transportation of production fluids would retain the potential for spill.

5.20. Colorado Standards for Public Land Health

In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. If there is the potential to impact these resources, the BLM will note whether or not the project area currently meets the standards and whether or not implementation of the Proposed Action would impair the standards.

5.20.1. Standard 1 – Upland Soils

It is unlikely the Proposed Action would impact overall soil productivity for the long term. Stormwater management BMPs and successful interim reclamation would help maintain soil viability and productivity through the project life to final reclamation.

5.20.2. Standard 2 – Riparian Systems

The Proposed Action would have no influence on the Public Land Health standard.

5.20.3. Standard 3 – Plant and Animal Communities

Upland plant communities in the project area currently meet the Standard. With implementation of mitigation measures and successful re-vegetation, the Proposed Action would likely increase vegetative cover and productivity to at least equal or possibly better than the surrounding landscape, due to the application of reclamation measures and monitoring. Overall with successful reclamation of disturbances, there would be no negative effect on the status of Land Health Standard 3 in the project area or at a landscape scale.

There would be no reasonable likelihood that the proposed project would influence aquatic habitats or animals. The project area presently meets the land health standard for terrestrial animal communities; though its successional state (i.e., conifer encroachment) detracts from its full potential as big game winter range habitat. The proposed project would temporarily reduce the utility of surrounding range from the standpoint of forage production and avoidance-caused disuse of forage and cover resources. These impacts would persist for several decades, but are minor in the context of extent and close association with pre-existing forms of disturbance (i.e., clustered effect). Modern drilling technologies would require continual and intense static points of disturbance during the period of animal occupation, but there are substantial offsetting benefits (i.e., reduced surface disturbance and extent/duration of behavioral impacts) that are considered advantageous by the BLM and CPW. As designed and conditioned, the project area would continue to meet the land health standard in the short and long term.

5.20.4. Standard 4 – Special Status Species

The proposed and no-action alternatives would not be expected to affect populations or habitats of plants associated with the Endangered Species Act or BLM sensitive species and, as such, would have no influence on the status of applicable Land Health Standards.

Water use attributable to well development contributes incrementally to flow depletion in the Upper Colorado River Basin and adverse modification of critical habitats of the four endangered Colorado River fishes, including Colorado pikeminnow. However, programmatic conservation measures developed in the course of Endangered Species Act consultation between FWS and Colorado BLM (January 1988) allow BLM to continue authorizing fluid mineral development that results in water depletion, while avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat. In this context, the Proposed Action would be consistent with continued meeting of this land health standard.

5.20.5. Standard 5 – Water Quality

It is unlikely that construction of the well pad, access roads, pipelines or drilling would result in an exceedance of state water quality standards.

6. SUPPORTING INFORMATION

6.1. Interdisciplinary Review

Table 9. List of Preparers

| Name | Title | Area of Responsibility | Date Signed |
|------------------|--|--|-------------|
| Paul Daggett | Mining Engineer | Air Quality; Geology and Minerals; Soil Resources; Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Prime and Unique Farmlands | 1/29/2015 |
| Ed Hollowed | Wildlife Biologist | Wetlands and Riparian Zones, Special Status Animal Species, Migratory Birds, Aquatic and Terrestrial Wildlife, | 12/22/2014 |
| Heather Woodruff | Ecologist | Vegetation, Invasive Non-Native Species, Special Status Plant Species, Wild Horses, Forestry and Woodland Products, Livestock Grazing, Areas of Critical Environmental Concern | 1/2/15 |
| Michael Selle | Archaeologist | Cultural Resources, Paleontological Resources, Native American Religious Concerns | 2/26/2015 |
| Ryan Snyder | Natural Resource Specialist/Project Lead | Visual Resources, Hazardous or Solid Wastes, Social and Economic Conditions, Lands with Wilderness Characteristics, Recreation, Access and Transportation, Wilderness, Scenic Byways | 4/21/15 |
| Stacey Burke | Realty Specialist | Realty Authorizations | 1/26/2015 |
| Kyle Frary | Fire Management Specialist | Fire Management | 1/20/2015 |
| Joe David | Planning & Environmental Coordinator | NEPA Compliance | 4/27/2015 |

6.2. Tribes, Individuals, Organizations, or Agencies Consulted

Colorado SHPO 11/26/2013 and 12/18/7/2014

6.3. References

Armstrong, Harley J. and David G. Wolny

1989 Paleontological Resources of Northwest Colorado: A Regional Analysis. Museum of Western Colorado, Grand Junction, Colorado.

Bilbey, Sue Ann, J. Evan Hall, Patricia E. Monaco, Peter Robinson, and Quinn W. Hall

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Management, Rio Blanco County, Colorado. Uinta Paleontological Associates, Inc., Vernal, Utah. (manuscript on file OAHP, Denver, Colorado)

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<http://cogcc.state.co.us/> accessed 03/17/2014

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WestWater Engineering (WestWater).

2012 Special Status Species (SSS) of Plants for WPX Energy's Ryan Gulch Waterlines: Corridors 3, 4, 8 and 11. Report Prepared for WPX Energy and White River BLM Field office. 2012. Grand Junction, Colorado.

APPENDIX A. FIGURES

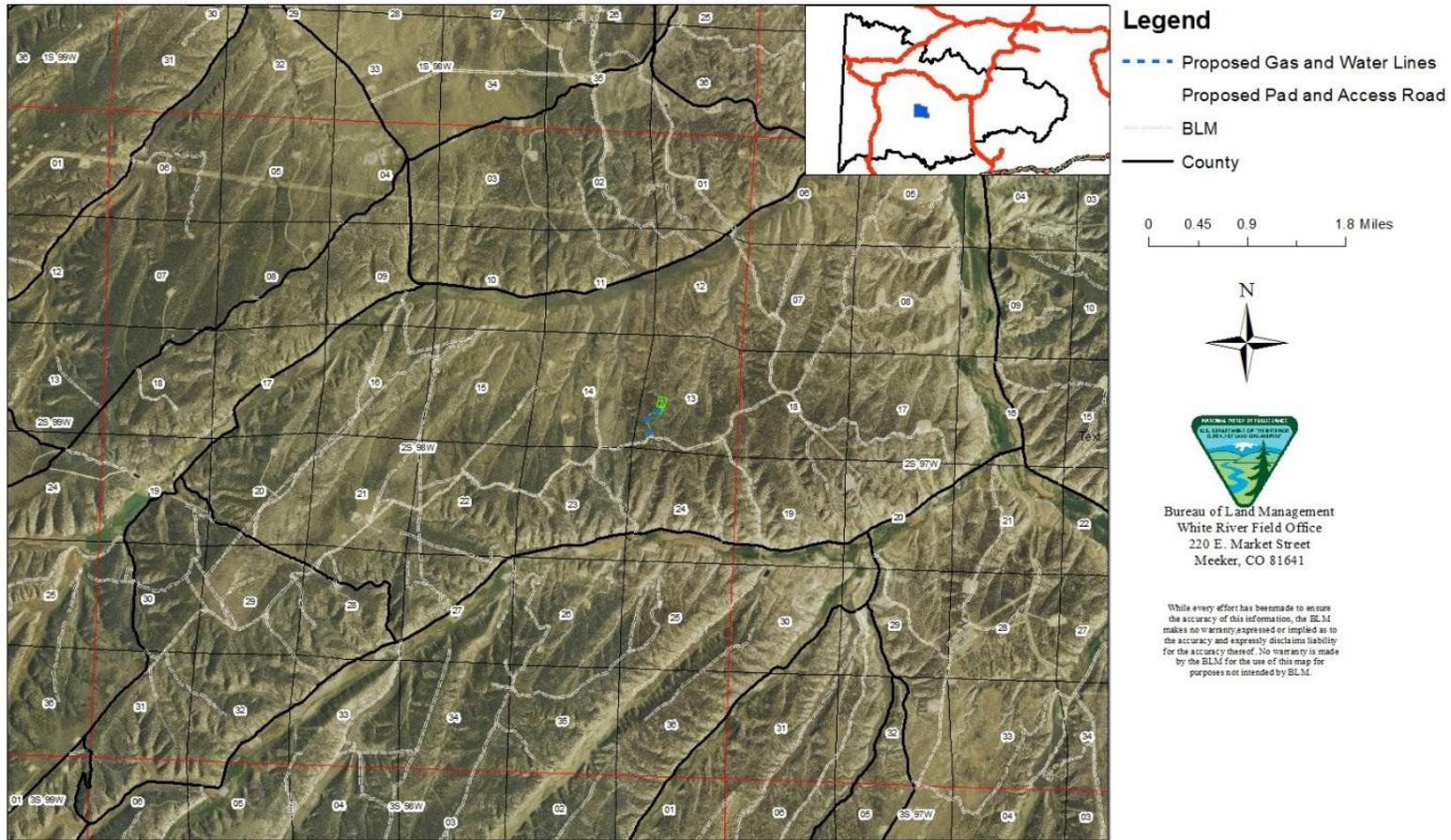


Figure 1: Overview map depicting the location of the Proposed Action.

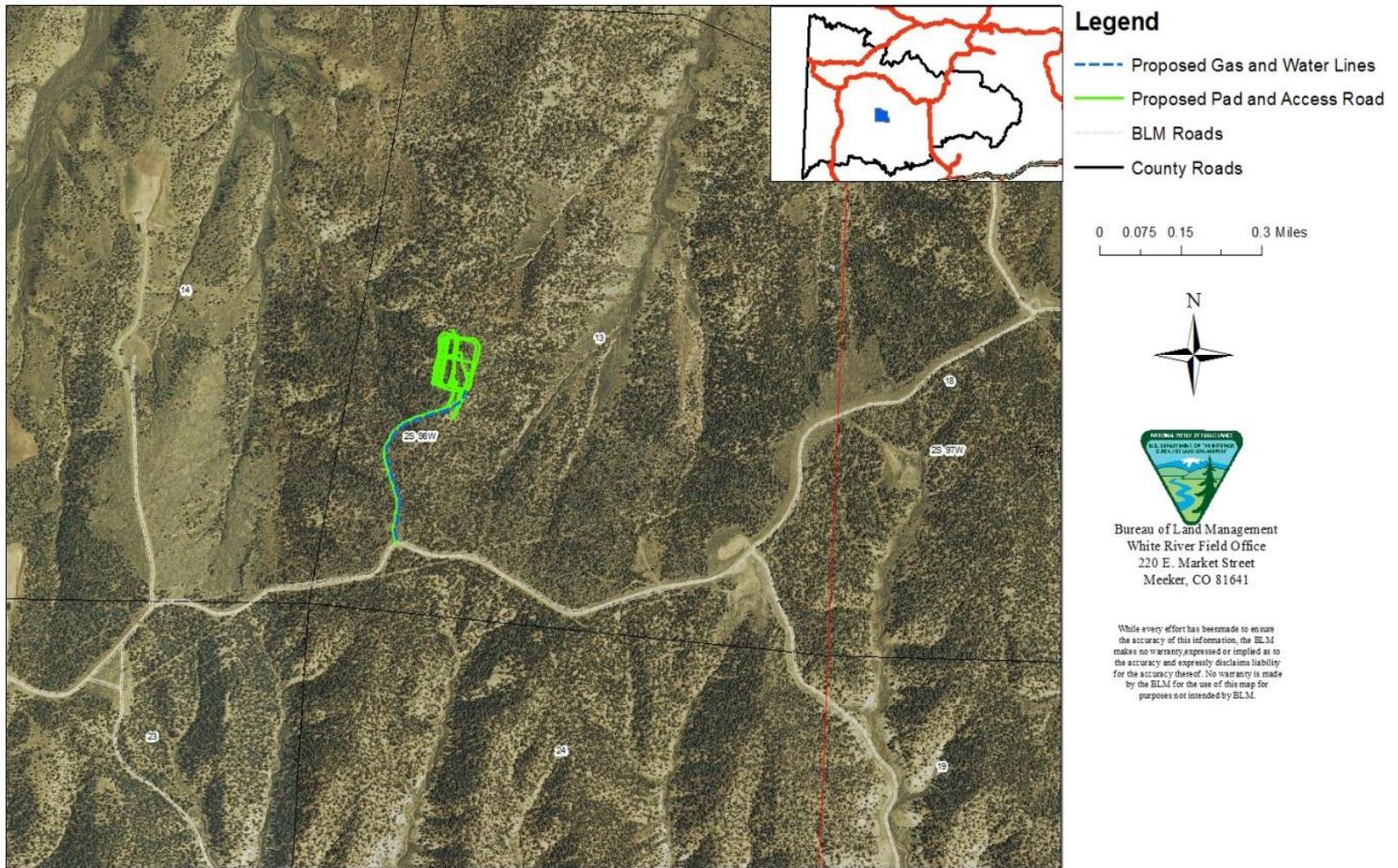


Figure 2: Map depicting the Proposed Action showing the proposed well pad, access road and pipelines.

APPENDIX B. AIR QUALITY TABLES AND FIGURES

Table 1. Ambient Air Quality Standards

| Pollutant [final rule citation] | Standard Type | Averaging Period | Level | Form | |
|--|-----------------------|-------------------------|------------------------|---|--|
| Carbon Monoxide [76 FR 54294, Aug 31, 2011] | Primary | 8-hour | 9 ppm | Not to be exceeded more than once per year | |
| | | 1-hour | 35 ppm | | |
| Lead [73 FR 66964, Nov 12, 2008] | Primary and secondary | Rolling 3-month average | 0.15 µg/m ³ | Not to be exceeded | |
| Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996] | Primary | 1-hour | 100 ppb | 98th percentile, averaged over 3 years | |
| | Primary and secondary | Annual | 53 ppb | Annual mean | |
| Ozone [73 FR 16436, Mar 27, 2008] | Primary and secondary | 8-hour | 0.075 ppm | Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years | |
| Particulate Matter [73 FR 3086, Jan 15, 2013] | PM2.5 | Primary | Annual | 12 µg/m ³ | Annual mean, averaged over 3 years |
| | | Secondary | Annual | 15 µg/m ³ | Annual mean, averaged over 3 years |
| | | Primary and secondary | 24-hour | 35 µg/m ³ | 98th percentile, averaged over 3 years |
| | PM10 | Primary and secondary | 24-hour | 150 µg/m ³ | Not to be exceeded more than once per year on average over 3 years |
| Sulfur Dioxide [75 FR 35520, Jun 22, 2010] Colorado (State Only) [38 FR 25678, Sept 14, 1973] | Primary | 1-hour | 75 ppb | 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years | |
| | Primary and Secondary | 3-hour | 267 ppb | Not to be exceeded in any 12 month period | |
| | Secondary | 3-hour | 0.5 ppm | Not to be exceeded more than once per year | |

Source: National – 40 CFR 50, Colorado – 5 CCR 1001-14.

µg/m³ = micrograms per cubic meter, ppb = parts per billion, ppm = parts per million.

Table 2. Ambient Air Quality Monitoring Data

| County | Pollutant | Standard | Monitored Values | | |
|------------|-----------|----------|------------------|-------|-------|
| | | | 2011 | 2012 | 2013 |
| Garfield | O3 | 8-hour | 0.076 | 0.068 | 0.062 |
| Garfield | PM10 | 24-hour | 73 | 46 | 34 |
| Moffat | O3 | 8-hour | 0.06 | 0.066 | 0.065 |
| Rio Blanco | NO2 | 1-hour | 23 | 19 | 24 |
| Rio Blanco | O3 | 8-hour | 0.073 | 0.069 | 0.091 |
| Rio Blanco | PM2.5 | 24-hour | 21.5 | 33.4 | 26.7 |
| Rio Blanco | PM2.5 | Annual | 9.9 | 9.9 | 9.1 |
| Routt | PM10 | 24-hour | 79 | 93 | 77 |

Table 3. Project Area County Annual Production Data (2013)

| County | No. of Producing Wells | Oil Produced (bbl) | Gas Produced (mcf) | Water Produced (bbl) |
|------------|------------------------|--------------------|--------------------|----------------------|
| Garfield | 12,402 | 2,224,642 | 656,014,787 | 41,593,707 |
| Moffat | 772 | 476,657 | 16,955,008 | 9,474,204 |
| Rio Blanco | 4,081 | 4,638,011 | 74,103,521 | 108,327,654 |

Table 4. 2011 County NEI Data (tons)

| Garfield | PM10 | PM2.5 | VOC | CO | NOX | SO2 | CO2 | CH4 | N2O | NH3 | HAPs |
|-------------------------|-----------------|-----------------|------------------|------------------|------------------|-----------------|-------------------|--------------|--------------|---------------|-----------------|
| Agriculture | 42 | 8.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 281.04 | 0 |
| Biogenics | 0 | 0 | 27,115.80 | 4,302.02 | 347.7 | 0 | 0 | 0 | 0 | 0 | 2,685.23 |
| Bulk Gasoline Terminals | 0 | 0 | 95.38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13.94 |
| Commercial Cooking | 32.58 | 30.18 | 4.33 | 12.41 | 0 | 0 | 0 | 0 | 0 | 0 | 1.64 |
| Dust | 2,627.39 | 312.21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fires | 203.21 | 171.98 | 468.98 | 1,992.60 | 27.41 | 15.01 | 23,517.54 | 97.22 | 0 | 32.6 | 45.85 |
| Fuel Comb | 250.46 | 248.18 | 2,307.63 | 4,222.61 | 6,129.26 | 117.03 | 0 | 0 | 0 | 19.29 | 591.98 |
| Gas Stations | 0 | 0 | 329.45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5.85 |
| Industrial Processes | 3,387.02 | 659.34 | 68,118.84 | 4,958.81 | 11,072.14 | 936.91 | 0 | 0 | 0 | 0 | 2,056.02 |
| Miscellaneous | 0 | 0 | 26.53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.96 |
| Mobile | 126.37 | 108.51 | 1,128.36 | 12,425.51 | 2,700.96 | 14.57 | 517,623.73 | 51.18 | 17.56 | 32.29 | 287.63 |
| Solvent | 0.06 | 0.05 | 358.57 | 6.45 | 5.74 | 0.02 | 0 | 0 | 0 | 0 | 216.96 |
| Waste Disposal | 3.68 | 1.1 | 20.47 | 0.03 | 0.03 | 0.06 | 0 | 0 | 0 | 0 | 7.61 |
| Sum Totals: | 6,672.76 | 1,539.95 | 99,974.34 | 27,920.44 | 20,283.25 | 1,083.59 | 541,141.28 | 148.4 | 17.56 | 365.22 | 5,914.65 |

| Moffat | PM10 | PM2.5 | VOC | CO | NOX | SO2 | CO2 | CH4 | N2O | NH3 | HAPs |
|-------------------------|-----------------|-----------------|------------------|------------------|------------------|-----------------|-------------------|--------------|------------|---------------|--------------|
| Agriculture | 295.32 | 59.06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 620.41 | 0 |
| Biogenics | 0 | 0 | 29,532.40 | 6,013.21 | 684.91 | 0 | 0 | 0 | 0 | 0 | 4,915.57 |
| Bulk Gasoline Terminals | 0 | 0 | 12.95 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.23 |
| Commercial Cooking | 4.58 | 4.24 | 0.61 | 1.78 | 0 | 0 | 0 | 0 | 0 | 0 | 0.22 |
| Dust | 2,359.91 | 365.51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fires | 136.65 | 112.8 | 255.29 | 1,183.21 | 24.78 | 10.63 | 16,113.35 | 52.21 | 0 | 17.15 | 35.57 |
| Fuel Comb | 293.09 | 187.08 | 222.29 | 3,226.03 | 14,244.15 | 3,957.08 | 0 | 0 | 0 | 87.25 | 127.13 |
| Gas Stations | 0 | 0 | 32.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.61 |
| Industrial Processes | 2,140.80 | 594.88 | 4,063.42 | 695.08 | 418.38 | 18.89 | 0 | 0 | 0 | 0 | 343.93 |
| Miscellaneous | 0 | 0 | 5.23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.39 |
| Mobile | 29.25 | 25.36 | 304.49 | 2,322.61 | 491.28 | 2.66 | 87,189.01 | 6.34 | 2.7 | 4.49 | 76.7 |
| Solvent | 0 | 0 | 93.11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53.75 |
| Waste Disposal | 3.35 | 3.32 | 7.36 | 0.16 | 0.59 | 0.08 | 0 | 0 | 0 | 0.05 | 0.91 |
| Sum Totals: | 5,262.94 | 1,352.25 | 34,529.85 | 13,442.08 | 15,864.10 | 3,989.34 | 103,302.36 | 58.55 | 2.7 | 729.34 | 5,555 |

| Rio Blanco | PM10 | PM2.5 | VOC | CO | NOX | SO2 | CO2 | CH4 | N2O | NH3 | HAPs |
|-------------------------|-----------------|-----------------|------------------|------------------|-----------------|---------------|------------------|--------------|-------------|---------------|-----------------|
| Agriculture | 45.03 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 397.02 | 0 |
| Biogenics | 0 | 0 | 27,153.50 | 5,122.03 | 418.28 | 0 | 0 | 0 | 0 | 0 | 3,589.10 |
| Bulk Gasoline Terminals | 0 | 0 | 55.47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.53 |
| Commercial Cooking | 2.65 | 2.43 | 0.33 | 0.99 | 0 | 0 | 0 | 0 | 0 | 0 | 0.12 |
| Dust | 3,766.95 | 573.15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fires | 42.54 | 35.08 | 81 | 379.98 | 6.05 | 2.81 | 4,112.06 | 16.26 | 0 | 5.43 | 9.64 |
| Fuel Comb | 119.63 | 119 | 490.89 | 1,967.11 | 2,987.78 | 26.18 | 0 | 0 | 0 | 2.78 | 152.11 |
| Gas Stations | 0 | 0 | 21.48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.59 |
| Industrial Processes | 1,377.62 | 387.99 | 23,394.12 | 1,294.50 | 1,938.32 | 414.12 | 0 | 0 | 0 | 0 | 676.05 |
| Miscellaneous | 0 | 0 | 5.36 | 0 | 0.02 | 0 | 0 | 0 | 0 | 0 | 0.4 |
| Mobile | 30.12 | 26.82 | 393.79 | 2,399.99 | 310.2 | 1.56 | 64,517.88 | 3.95 | 1.72 | 2.91 | 104.8 |
| Solvent | 0 | 0 | 46.1 | 11.28 | 18.05 | 0 | 0 | 0 | 0 | 0 | 25.9 |
| Waste Disposal | 8.27 | 8.25 | 5.54 | 0.78 | 0.07 | 0.01 | 0 | 0 | 0 | 0.02 | 0.1 |
| Sum Totals: | 5,392.80 | 1,161.74 | 51,647.58 | 11,176.66 | 5,678.77 | 444.69 | 68,629.93 | 20.21 | 1.72 | 408.18 | 4,563.35 |

Table 5. Annual Emissions Inventory for Project (Tons)

| WRFO EA - WPX 24-13-298 - 20 wells - 1 pad | | | | | | | | | | | |
|--|-------------|-------------|--------------|--------------|-------------|--------------|-------------|-----------------|---------------|-------------|------|
| activity | PM10 (TPY) | PM2.5 (TPY) | CO (TPY) | NOx (TPY) | SO2 (TPY) | VOC (TPY) | HAPs (TPY) | CO2 (TPY) | CH4 (TPY) | N2O (TPY) | |
| well pad / infrastructure construction - surface disturbance | 0.19 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| well pad / infrastructure construction - traffic - dust | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| well pad / infrastructure construction - traffic - exhaust | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| well pad / infrastructure construction - heavy equipment | 0.01 | 0.01 | 0.02 | 0.06 | 0.00 | 0.01 | 0.00 | 4.12 | 0.00 | 0.00 | 0.00 |
| drill rig transport - dust | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| drill rig transport - exhaust | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 |
| other drilling traffic - dust | 0.10 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| other drilling traffic - exhaust | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.35 | 0.00 | 0.00 | 0.00 |
| Tier 2 drilling engines | 1.33 | 1.29 | 23.11 | 33.78 | 0.25 | 8.89 | 0.89 | 4,636.80 | 0.22 | 0.05 | 0.00 |
| Tier 2 frac pump engines | 0.40 | 0.39 | 7.02 | 10.25 | 0.08 | 2.70 | 0.27 | 1,407.60 | 0.07 | 0.02 | 0.00 |
| completion water traffic - dust | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| completion water traffic - exhaust | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| other completion traffic - dust | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| other completion traffic - exhaust | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.00 | 0.00 | 0.00 |
| completion venting and flaring | 0.08 | 0.06 | 0.84 | 1.00 | 0.00 | 0.56 | 0.06 | 1,200.00 | 0.02 | 0.02 | 0.00 |
| Tier 4 work-over rig engines | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 7.87 | 0.00 | 0.00 | 0.00 |
| recompletion venting and flaring | 0.01 | 0.01 | 0.08 | 0.10 | 0.00 | 0.01 | 0.00 | 120.00 | 0.00 | 0.00 | 0.00 |
| condensate truck loading | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
| well blowdowns | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.01 | 0.06 | 0.73 | 0.00 | 0.00 |
| area source fugitives | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.92 | 0.19 | 0.93 | 11.89 | 0.00 | 0.00 |
| pneumatic pumps | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
| pneumatic devices | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.28 | 0.53 | 3.99 | 51.17 | 0.00 | 0.00 |
| wind erosion - applied for pads in production | 0.17 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| production traffic - dust | 0.08 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| production traffic - exhaust | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 |
| pad heater | 0.03 | 0.01 | 0.32 | 0.38 | 0.00 | 0.02 | 0.00 | 450.51 | 0.01 | 0.01 | 0.00 |
| dehydrators | 0.00 | 0.00 | 0.01 | 0.02 | 0.00 | 0.27 | 0.03 | 21.19 | 0.44 | 0.00 | 0.00 |
| condensate tanks | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.40 | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| water tanks | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| totals - WPX 24-13-298 | 2.74 | 2.05 | 45.55 | 53.10 | 0.33 | 34.39 | 3.44 | 11114.53 | 135.20 | 0.12 | |

* emissions are based on data surveys and assumptions as part of the WRFO RMP analysis. Development and well counts provided by WPX and WRFO (01-2015).

Table 6. Screening-Level Modeled Near-Field Impacts

| NAAQS Table - Facility / Well-Pad | | | | | | | | |
|--|-------------|----------------------|------------------------------------|-------------|---------------|---------------------------------------|-------|------------------|
| Criteria Pollutant | Avg. Period | Year | Concentration (ug/m ³) | | | Ambient Standard (ug/m ³) | | Percent of NAAQS |
| | | | Modeled | Back-ground | Total | NAAQS | CAAQS | |
| NO ₂ | 1-hour | Mutiple Year Average | 68.91 | 45.4 | 114.31 | 189 | NA | 60% |
| PM ₁₀ | 24-hour | 2008 | 1.68 | 34 | 35.68 | 150 | 150 | 24% |
| | | 2009 | 1.97 | | 35.97 | | | 24% |
| | | 2010 | 2.46 | | 36.46 | | | 24% |
| | | 2011 | 2.00 | | 36.00 | | | 24% |
| | | 2012 | 2.46 | | 36.46 | | | 24% |
| PM _{2.5} | 24-hour | Mutiple Year Average | 0.53 | 26.7 | 27.23 | 35 | NA | 78% |
| PM _{2.5} | Annual | Mutiple Year Average | 0.06 | 9.1 | 9.16 | 12 | NA | 76% |
| CAAQS = Colorado Ambient Air Quality Standards | | | | | | | | |
| μg/m ³ = micrograms per cubic meter | | | | | | | | |
| NAAQS = National Ambient Air Quality Standards | | | | | | | | |
| * Due to 1-hour NO ₂ , 24-hour PM _{2.5} , and 1-hour SO ₂ NAAQS standard formats that use a three-year average to determine compliance, only one total concentration is reported for the five-year modeling period. | | | | | | | | |

NAAQS Table - Access Road

| Criteria Pollutant | Avg. Period | Year | Concentration (ug/m ³) | | | Ambient Standard (ug/m ³) | | Percent of NAAQS |
|--------------------|-------------|----------------------|------------------------------------|-------------|--------------|---------------------------------------|-------|------------------|
| | | | Modeled | Back-ground | Total | NAAQS | CAAQS | |
| PM ₁₀ | 24-hour | 2008 | 7.08 | 34 | 41.08 | 150 | 150 | 27% |
| | | 2009 | 7.90 | | 41.90 | | | 28% |
| | | 2010 | 8.40 | | 42.40 | | | 28% |
| | | 2011 | 7.90 | | 41.90 | | | 28% |
| | | 2012 | 7.80 | | 41.80 | | | 28% |
| PM _{2.5} | 24-hour | Mutiple Year Average | 0.88 | 26.7 | 27.58 | 35 | NA | 79% |
| PM _{2.5} | Annual | Mutiple Year Average | 0.30 | 9.1 | 9.40 | 12 | NA | 78% |

CAAQS = Colorado Ambient Air Quality Standards

µg/m³ = micrograms per cubic meter

NAAQS = National Ambient Air Quality Standards

* Due to 24-hour and annual PM_{2.5} standard format that uses a three-year average to determine compliance, only one total concentration is reported for the five-year modeling period.

HAPs Table - Acute

| HAP | Modeled Year | Maximum 1-Hour Modeled ($\mu\text{g}/\text{m}^3$) | Background Concentration ($\mu\text{g}/\text{m}^3$) | Maximum Total Concentration ($\mu\text{g}/\text{m}^3$) | REL ($\mu\text{g}/\text{m}^3$) | Percent of REL (%) |
|--------------|--------------|---|---|--|----------------------------------|--------------------|
| Benzene | 2008 | 7.47 | 18.34 | 25.81 | 1,300 | 2% |
| | 2009 | 4.31 | | 22.65 | | 2% |
| | 2010 | 7.86 | | 26.20 | | 2% |
| | 2011 | 8.74 | | 27.08 | | 2% |
| | 2012 | 9.69 | | 28.03 | | 2% |
| Formaldehyde | 2008 | 0.00 | 2.8 | 2.80 | 55 | 5% |
| | 2009 | 0.00 | | 2.80 | | 5% |
| | 2010 | 0.00 | | 2.80 | | 5% |
| | 2011 | 0.00 | | 2.80 | | 5% |
| | 2012 | 0.00 | | 2.80 | | 5% |
| n-Hexane | 2008 | 30.94 | 66.97 | 97.91 | 390,000 | 0% |
| | 2009 | 17.75 | | 84.72 | | 0% |
| | 2010 | 32.52 | | 99.49 | | 0% |
| | 2011 | 36.20 | | 103.17 | | 0% |
| | 2012 | 40.16 | | 107.13 | | 0% |

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

REL = Reference Exposure Level

* data source for all pollutants except n-hexane: USEPA Air Toxics Database, Table 2 (USEPA, 2005a).

* No REL available for n-hexane. Values shown are from Immediately Dangerous to Life or Health (IDLH/10), USEPA Air Toxics Database, Table 2 (USEPA, 2005a).

| HAPs Table - Chronic | | | | | |
|-----------------------------|-------------|---|---|--|--|
| Pollutant | Year | Annual Modeled Concentration ($\mu\text{g}/\text{m}^3$) | Background Concentration ($\mu\text{g}/\text{m}^3$) | Maximum Total Concentration ($\mu\text{g}/\text{m}^3$) | RfC ($\mu\text{g}/\text{m}^3$) |
| Benzene | 2008 | 0.03 | 5.97 | 6.00 | 30 |
| | 2009 | 0.03 | | 6.00 | |
| | 2010 | 0.03 | | 6.00 | |
| | 2011 | 0.03 | | 6.00 | |
| | 2012 | 0.03 | | 6.00 | |
| Formaldehyde | 2008 | 0.00 | 1.39 | 1.39 | 9.8 |
| | 2009 | 0.00 | | 1.39 | |
| | 2010 | 0.00 | | 1.39 | |
| | 2011 | 0.00 | | 1.39 | |
| | 2012 | 0.00 | | 1.39 | |
| n-Hexane | 2008 | 0.11 | 18.33 | 18.44 | 200 |
| | 2009 | 0.11 | | 18.44 | |
| | 2010 | 0.12 | | 18.45 | |
| | 2011 | 0.11 | | 18.44 | |
| | 2012 | 0.14 | | 18.47 | |

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
RfC = Reference Concentration for Chronic Inhalation
* USEPA Air Toxics Database, Table 1 (USEPA, 2005b).

Table 7. CARMMS Future O&G Development / Projections Modeled – WRFO

| Parameter | RFD (High) Scenario¹ | 5-year Average (Low) Scenario² |
|--|--|--|
| Federal Wells Per Year | 599 (5,993 in 10 years) | 99 (990 in 10 years) |
| Cumulative (Fed and non-Fed) Wells Per Year | 681 | 126 |
| Wells Per Pad (assumed for analysis) | 8 | 8 |
| 2021 Cumulative Active Well Counts | 9,278 | 3,727 |
| % 2021 Cumulative Wells that Are Federal | 88% | 78% |
| Cumulative Average Annual No. Drill Rigs Operating | 27 | 5 |
| Cumulative 2021 Gas Production (MMscf/yr) | 457,261 | 97,587 |
| Cumulative 2021 Oil / Condensate Production (Mbbbl/yr) | 2,419 | 609 |

¹ RFD based on O&G Industry and BLM Resource Specialists 20-year projections for the WRFO

² Future O&G development projections based on recent 5 years (2008-2012) of O&G development data for the WRFO.

Table 8. CARMMS Baseline and Projected Year 2021 Annual Emissions (TPY) - WRFO Federal O&G

| Field Office | PM ₁₀ | PM _{2.5} | NO _x | VOC | CO | SO ₂ | CO ₂ | CH ₄ | N ₂ O |
|---|------------------|-------------------|-----------------|--------|-------|-----------------|-----------------|-----------------|------------------|
| Baseline - 2011 | 354 | 169 | 3,296 | 4,433 | 2,495 | 270 | 1,054,639 | 21,321 | 17 |
| RFD (High) Scenario - 2021 | 1,530 | 646 | 12,141 | 18,556 | 8,897 | 934 | 4,128,642 | 87,610 | 66 |
| Emissions Change (2021 minus 2011) – RFD Scenario | 1,176 | 478 | 8,846 | 14,123 | 6,402 | 664 | 3,074,003 | 66,289 | 49 |
| RFD (Low) Scenario - 2021 | 391 | 158 | 2,760 | 4,758 | 2,223 | 181 | 1,128,378 | 27,244 | 19 |
| Emissions Change (2021 minus 2011) – Low Scenario* | 37 | -10 | -536 | 325 | -272 | -89 | 73,739 | 5,923 | 2 |

*for the low scenario, the decline (negative values) in NO_x, CO, SO₂ and PM_{2.5} emissions are associated with the overall decline in Federal O&G production due to normal production decline over the life of a western Colorado O&G well. Although there will be more Federal wells in operation in year 2021 (versus year 2011), the overall emissions for WRFO O&G production decline associated with current existing wells (year 2011) offset the O&G production related emissions associated with the new additional Federal wells in WRFO.

Table 9. CARMMS - WRFO Federal O&G Contribution to Modeled Impacts

| Source Group - Modeling Scenario | Number of Annual Days Above 0.5 dv Change | Maximum Modeled Annual Nitrogen Deposition (kg/ha-yr) | Overall Maximum 4th High Daily 8-hour Ozone Contribution (ppb) | Maximum 4th High Daily 8-hour Ozone Contribution to Modeled Exceedance (ppb) | Overall Maximum 8th High 24-hour PM _{2.5} Contribution (ug/m ³) |
|----------------------------------|---|---|--|--|--|
| WRFO – Low Scenario - Year 2021 | 0 | 0.0228 | 1.2 | 0.4321 | 0.6 |

* maximum modeled concentrations / values for any Class I / sensitive Class II area (AQRV) or grid cell (ozone).

Table 10. CARMMS Modeled AQRV Impacts - Low 2021 Scenario - Full Cumulative Emissions Inventory

| Class I Area | Best 20% Days Visibility Metric (dv) - 2021 Low Improvement from 2008 | Worst 20% Days Visibility Metric (dv) - 2021 Low Improvement from 2008 | Maximum Modeled Annual Nitrogen Deposition (kg/ha-yr) – 2021 Low Improvement from 2008 |
|-------------------------|--|---|---|
| Mount Zirkel Wilderness | 0.16 | 0.87 | 1.03 |
| Flat Tops Wilderness | 0.20 | 0.68 | 0.96 |

* positive values mean overall improvement and deposition values are maximum for all grid cells making up the Class I area

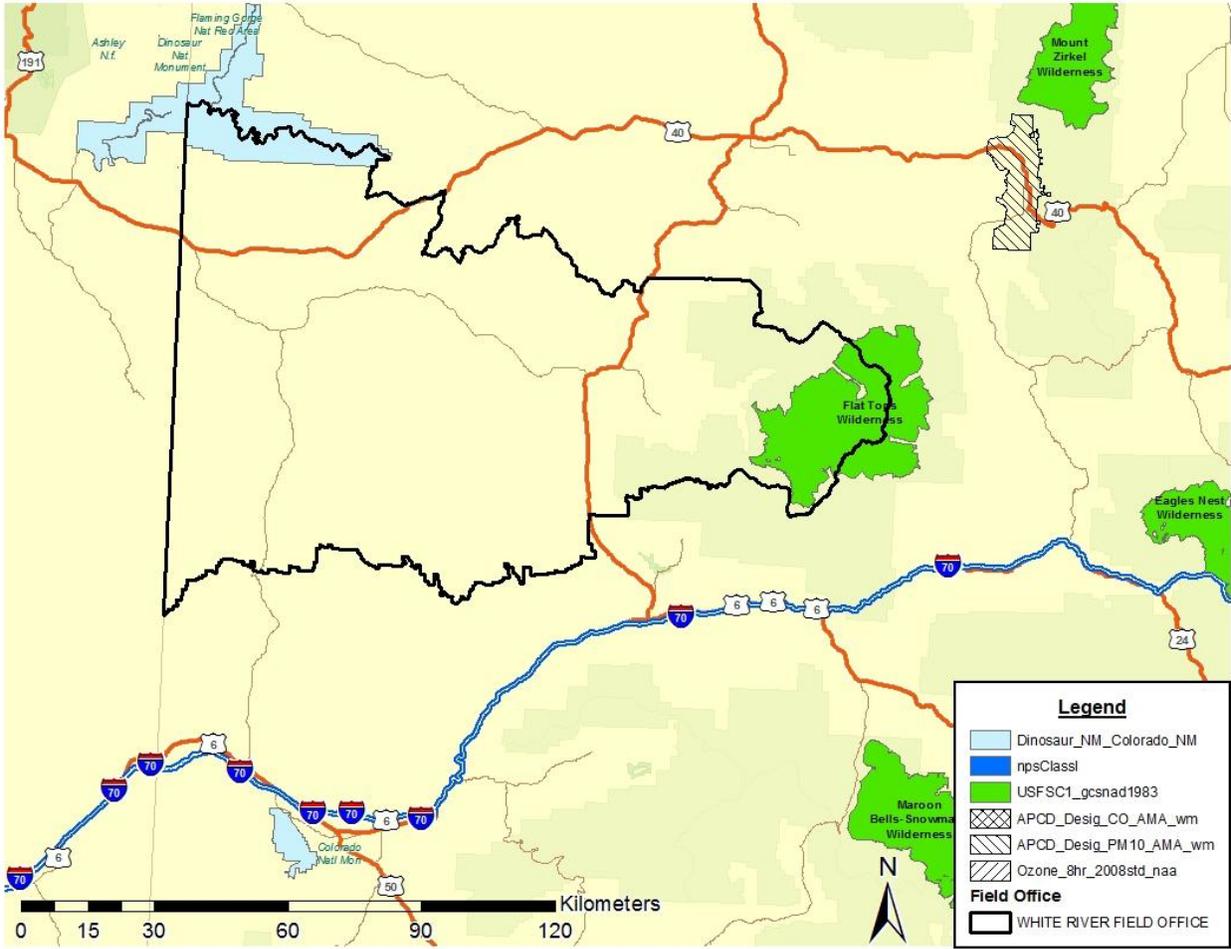


Figure 3: Field Office and Designated Air Boundaries.

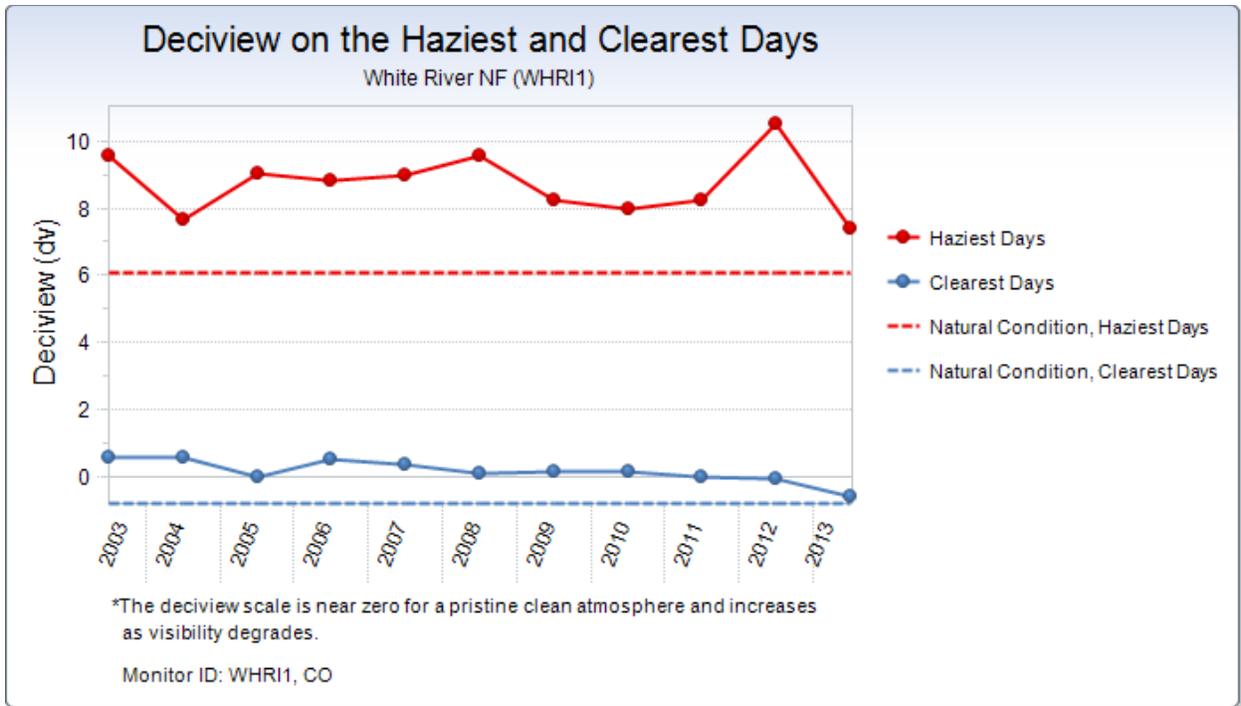
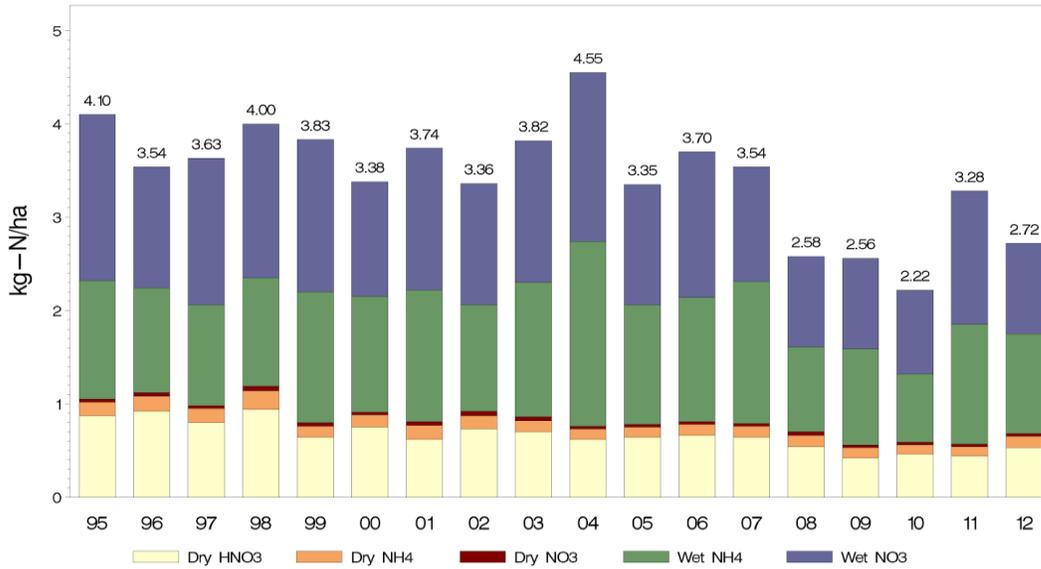


Figure 4: AQRV Visibility Data for White River National Forest.

Total N Deposition ROM406

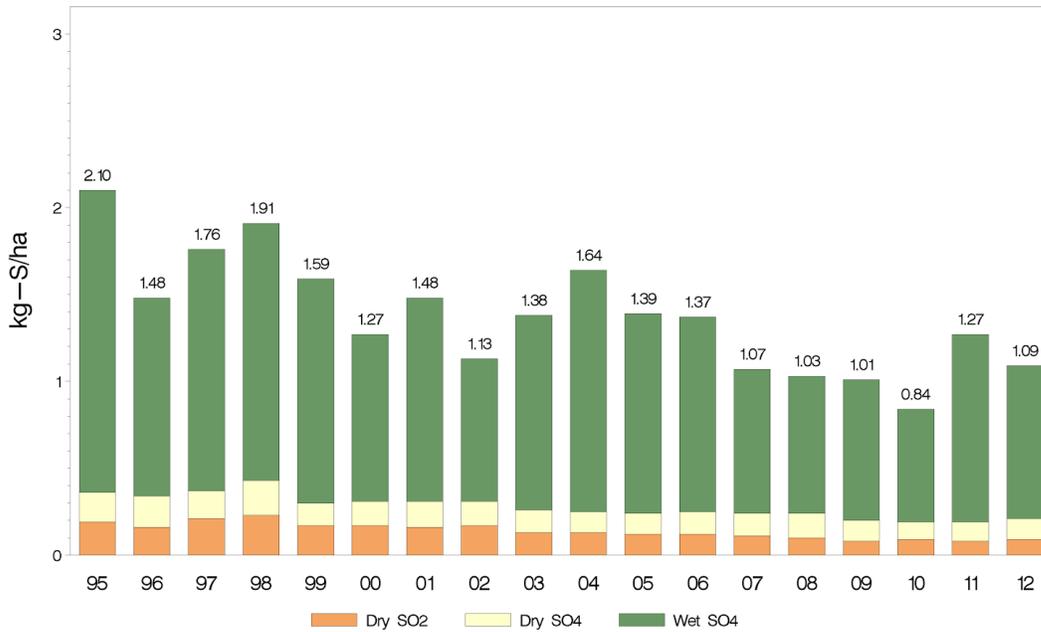


Source: CASTNET + Interpolated NADP-NTN/PRISM

Only complete years are shown

23APR14

Total S Deposition ROM406



Source: CASTNET + Interpolated NADP-NTN/PRISM

Only complete years are shown

23APR14

Figure 5: AQRV Deposition Data for Rocky Mountain National Park.

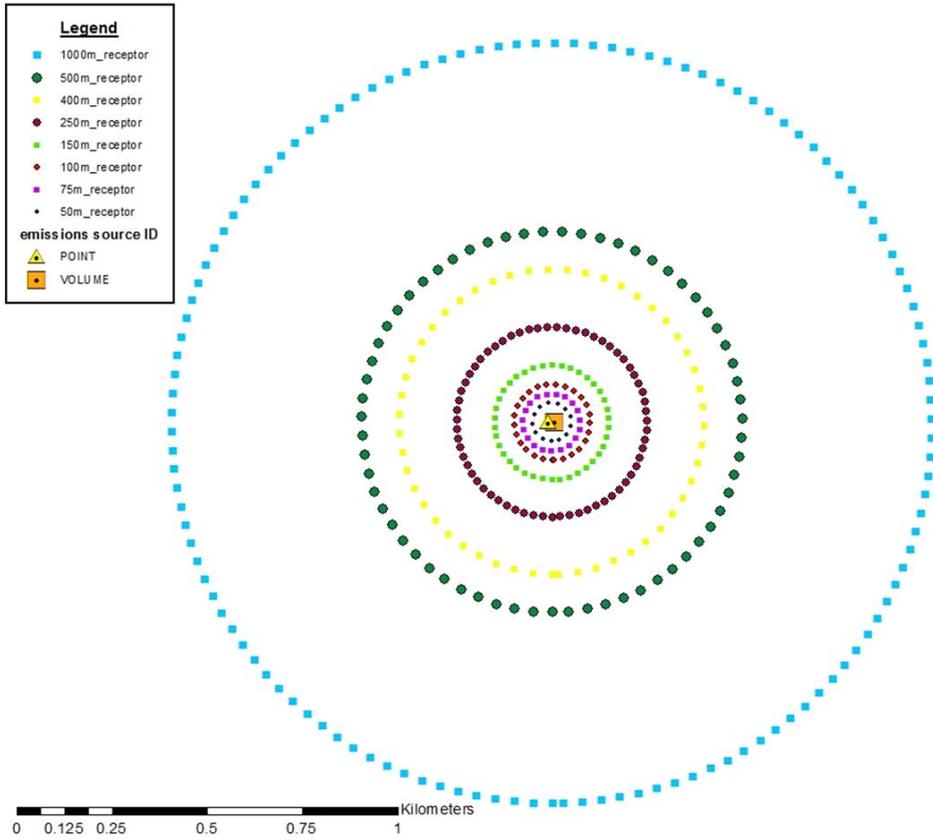


Figure 6: Well pad and facility modeling domain configuration.

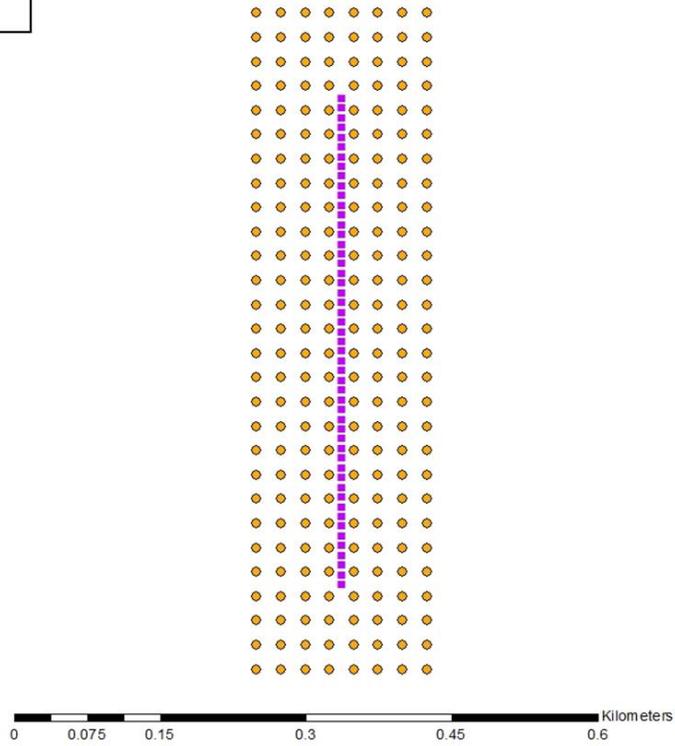


Figure 7: Access road modeling domain configuration.

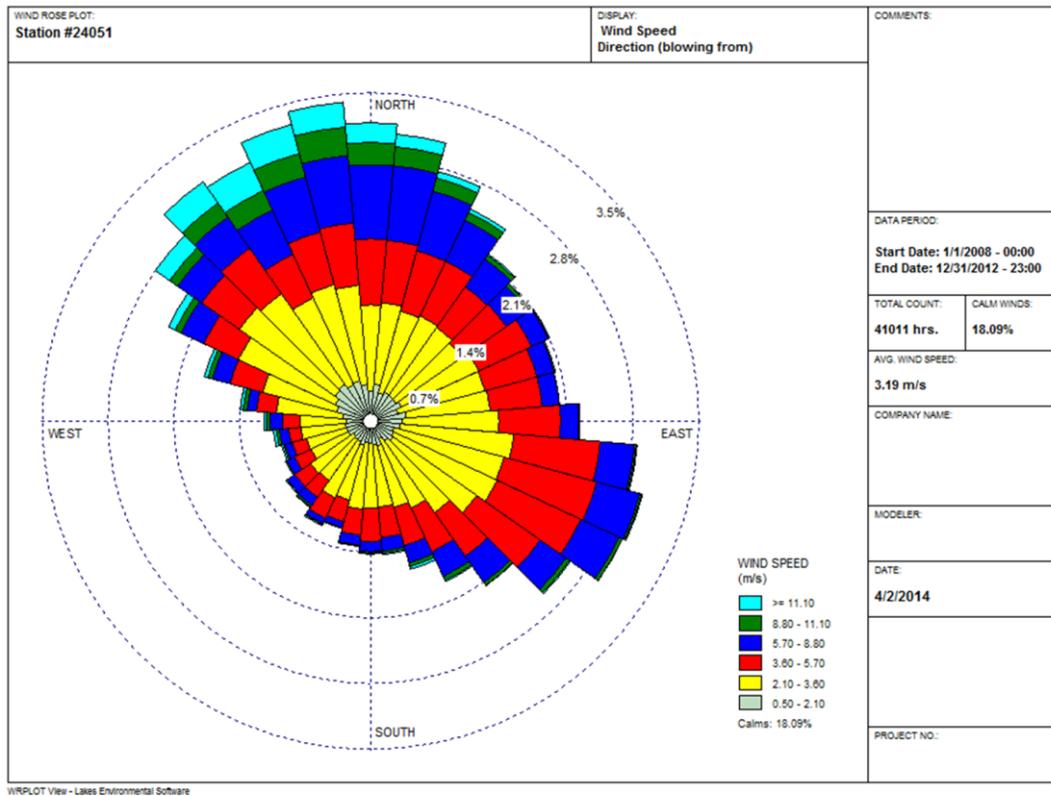


Figure 8: Wind rose configuration.

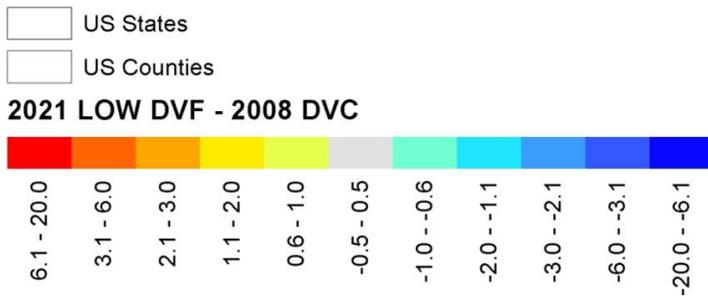
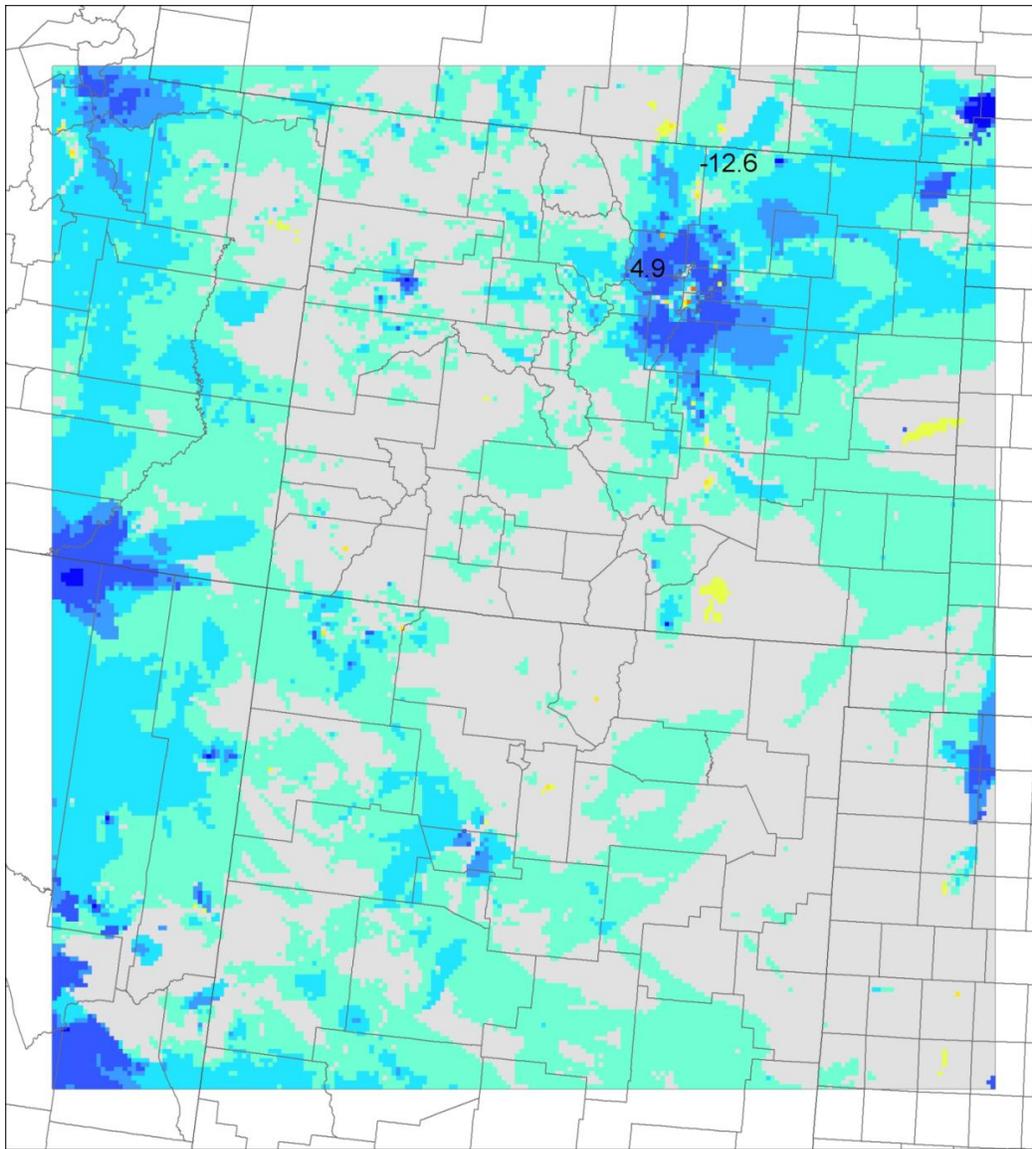


Figure 9: CARMMS plot shows predicted ozone reductions in the Denver and Salt Lake City areas for the CARMMS Low development scenario.

The 8th highest daily average PM_{2.5} Concentration
2021 Low Oil and Gas Scenario - 2008
CARMMS CAMx 4km

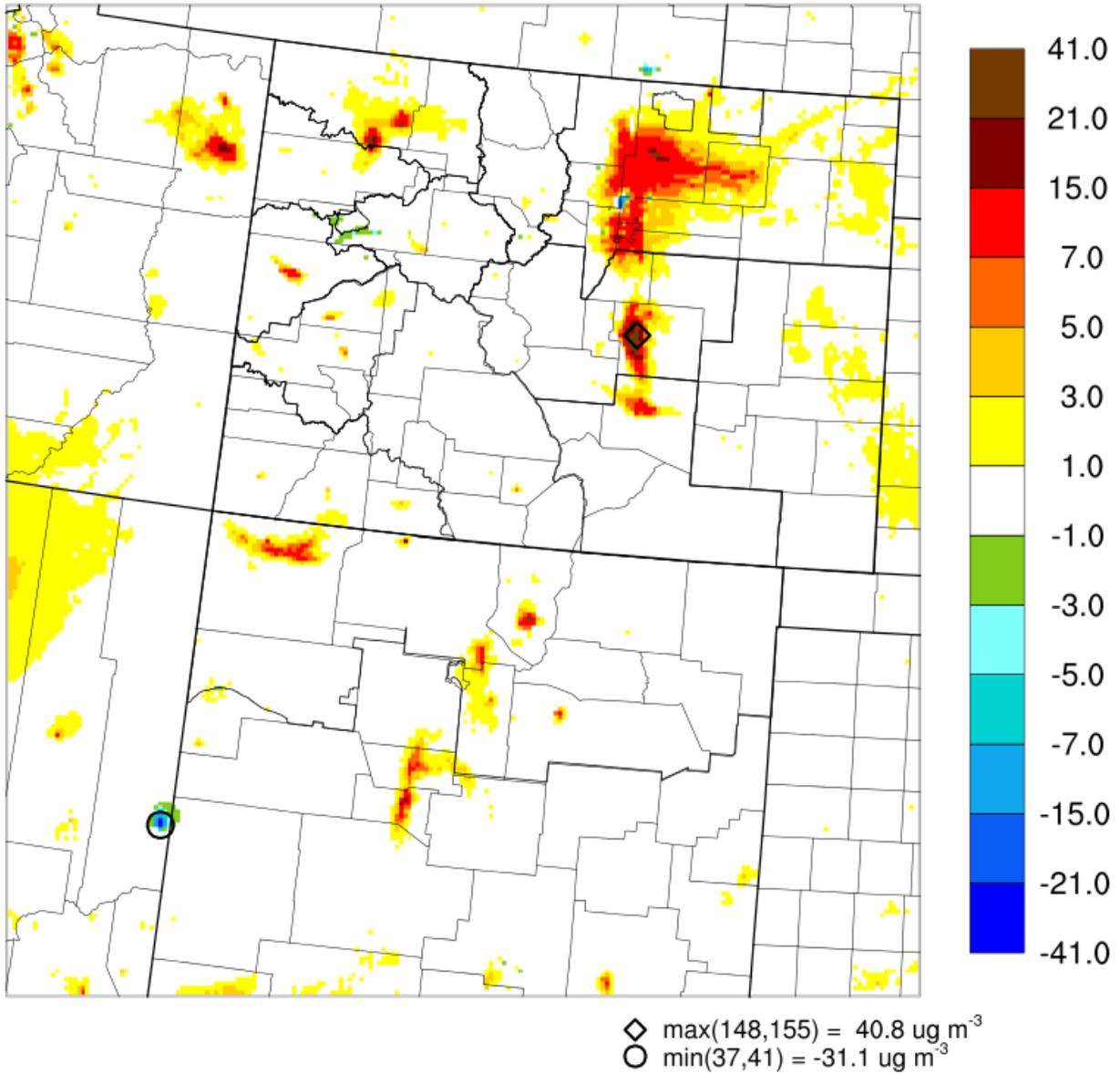


Figure 10: CARMMS plot shows changes in 8th highest daily average PM_{2.5} concentrations.

**U.S. Department of the Interior
Bureau of Land Management
White River Field Office
220 E Market St
Meeker, CO 81641**

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

WPX's Proposed RG 13-13-298 well pad (20 APDs)
DOI-BLM-CO-N05-2015-0115-EA

Background

WPX Energy Rocky Mountain LLC (WPX) is proposing to construct one well pad with 20 natural gas wells. There will also be an associated access road, pipeline, and remote fracing temporary surface lines. The well pad is proposed at approximately 3.62 acres with a total edge of disturbance acreage estimated at 6.76 acres. After interim reclamation has been successful, the pad is estimated to be reclaimed to approximately 1.59 acres. The access road and pipeline will come off of Rio Blanco County (RBC) Road 26 for a construction length of approximately 1,919 feet and pipeline length of 1,880 feet.

Finding of No Significant Impact

Based upon a review of the EA and the supporting documents, I have determined that the Proposed Action will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27 and do not exceed those effects as described in the White River Resource Area Proposed Resource Management Plan and Final Environmental Impact Statement (1996). Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

Context

The project is a site-specific action directly involving BLM administered public lands that do not in and of itself have international, national, regional, or state-wide importance. The proposed location has over five known well locations within one mile. Although not in a Federal Unit, the lease is within two miles of three Federal Units.

Intensity

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

1. Impacts that may be both beneficial and adverse.

During construction, the Proposed Action will have 6.76 acres of disturbance, reducing down to 1.59 acres after the successful interim reclamation. After final abandonment and final reclamation of the location, the disturbance would return to 0 acres. This well pad location is proposed for 20 wells, reducing the amount of disturbance that would occur if the resource was retrieved from single well pads.

2. The degree to which the Proposed Action affects public health or safety.

There would be no impact to public health and safety if the safety measures described in the operator's drilling plan and Surface Use Plan of Operations are properly implemented, and the developed mitigation is adhered to.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

A cultural resources Class III inventory was completed for the Proposed Action and identified two resources within the Area of Potential Affect. However, the Proposed Action was re-designed to move the disturbance away from the resources.

4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial.

No comments or concerns have been received regarding possible effects on the quality of the human environment during scoping.

5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.

No highly uncertain or unknown risks to the human environment were identified during analysis of the Proposed Action.

6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The Proposed Action neither establishes a precedent for future BLM actions with significant effects nor represents a decision in principle about a future consideration. This action is similar to many actions proposed and reviewed in the NEPA process in the BLM WRFO that involve construction of a well pad, constructing an access road, and drilling one or more wells.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

The Proposed Action was considered in the context of past, present, and reasonably foreseeable actions. No cumulative impacts related to other actions that would have a significant adverse impact were identified or are anticipated.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

A cultural resources Class III inventory was completed for the Proposed Action and identified two resources within the Area of Potential Affect. However, the Proposed Action was re-designed to move the disturbance away from the resources.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.

No special status plant species concerns have been identified. Cumulative water depletions from the Colorado River Basin are considered likely to jeopardize the continued existence of the Colorado pikeminnow, humpback chub, bonytail, and razorback sucker and result in the destruction or adverse modification of their critical habitat. In 2008, BLM prepared a Programmatic Biological Assessment (PBA) that addressed water depleting activities associated with BLM's fluid minerals program in the Colorado River Basin in Colorado, including water used for well drilling, hydrostatic testing of pipelines, and dust abatement on roads. In response, the U.S. Fish and Wildlife Service (FWS) prepared a Programmatic Biological Opinion (PBO) that addressed water depletions associated with fluid minerals development on BLM lands. The PBO included reasonable and prudent alternatives which allowed BLM to authorize oil and gas wells that result in water depletion while avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat. The reasonable and prudent alternative authorized BLM to solicit a one-time contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in an amount based on the average annual acre-ft depleted by fluid minerals activities on BLM lands. This contribution was ultimately provided to the Recovery Program through an oil and natural gas development trade association. Development associated with this project would be entered into the WRFO fluid minerals water depletion log that is submitted to the Colorado State Office at the end of each Fiscal Year.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Neither the Proposed Action nor impacts associated with it violate any laws or requirements imposed for the protection of the environment.

Signature of Authorized Official

Thunt E. Walker

Field Manager

04/30/2015
Date

**U.S. Department of the Interior
Bureau of Land Management
White River Field Office
220 E Market St
Meeker, CO 81641**

DECISION RECORD

WPX's Proposed RG 13-13-298 well pad (20 APDs)
DOI-BLM-CO-N05-2015-0115-EA

Decision

It is my decision to implement the Proposed Action, as mitigated in DOI-BLM-CO-N05-2015-0115-EA, authorizing the construction, operation, and maintenance of the RG 13-13-298 well pad, 20 associated wells, an access road and pipeline.

Applicant Committed Design Features

1. WPX Energy adheres to complete compliance with federal and state air quality regulations as prescribed by the Clean Air Act and CDPHE Regulations Nos. 1,2,3 &7. WPX Energy is proactive in its permitting and compliance demonstrations by employing Emission Control Devices (ECD) where is warranted and closely monitors the operations of these devices. WPX Energy works closely with the CDPHE Air Pollution Control Division to obtain permits and make any air emission controls installed enforceable through compliance demonstrations and ensure that they meet the highest achievable efficiency and standards. WPX will limit unnecessary emissions from point or nonpoint pollution sources and prevent air quality deterioration from necessary pollutions sources in accordance with all applicable state, federal and local air quality law and regulations.
2. WPX will treat all access roads with water and/or chemical dust suppressant during construction and drilling activities so that there is not a visible dust trail behind vehicles. Any technique other than the use of fresh water as a dust suppressant on BLM lands will require prior written approval from the BLM.
3. All chemical management will comply with COGCC, CDPHE, and SARA Title III reporting requirements, including MSDS sheets for all chemicals used in WPX Energy's operation.
4. Cultural surveys have been ordered. WPX will inform all persons who are associated with the project they will be subject to prosecution for knowingly disturbing archeological sites or for collecting artifacts.

5. If any archeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archeologist will be notified immediately. Work may not resume at that location until approved by the AO. WPX will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation options within 48 hours of the discovery. WPX, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.
6. Pursuant to 43 CFR 10.4(g), WPX will notify the AO, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to CFR 10.4(c) and (d), WPX will stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.
7. WPX will notify Craig Interagency Dispatch (970-826-5037) in the event of any fire. The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type, and provide their contact information. The reporting party, or representative of, should remain nearby, in a safe location, in order to make contact with incoming fire resources to expedite actions taken towards and appropriate management response.
8. All parties will not engage in any fire suppression activities outside the approved a project area. Accidental ignitions caused by welding, cuttings, grinding etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used WPX must notify incoming fire resources on extinguisher type and location of use.
9. WPX will chip and mix with topsoil for future redistribution all vegetation not being used for storm water management or erosion controls.
10. Drilling plans will comply with COGCC, CDPHE and local government agency ground water protection regulations.
11. Noise thresholds as established with COGCC will be complied with in accordance with State Title 34 regulations.
12. WPX will inform all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing or collecting vertebrate fossils, collecting large amounts of petrified wood (over 25lbs/day, up to 250lbs/year) or collecting fossils for commercial purposes on public lands.

13. If any paleontological resources are discovered as a result of operations under this authorization, WPX and any of its agents will stop work immediately at that site, and the BLM Paleontology Coordinator will be notified immediately. WPX will make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the AO. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 days, WPX will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (b) following the Paleontology Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.
14. Fences, water developments, cattleguards, gates or other livestock handling/distribution facilities that are damaged or destroyed either directly or indirectly as a result of implementation of this Proposed Action shall be promptly repaired or replaced by WPX to restore pre-disturbance functionality.
15. WPX will notify the permittee authorized to graze livestock within the project area or WRFO Range Management staff of planning construction activities 72 hours prior to beginning construction.
16. Erosion features such as rilling, gulying, piping and mass wasting on surface disturbance or adjacent to the surface disturbance as a result of these actions will be addressed immediately after observation by contacting the Authorized Officer (AO) and by submitting a plan to assure successful soil stabilization with BMP's to address erosion problems.
17. All spills will be managed in accordance with Federal, State and local requirements, including notification, reporting, response and remediation actions.

Mitigation Measures

Air Quality

1. All drill rigs, fracing and completion related engines will be required to meet EPA Non-Road Tier II Emissions Standards (or cleaner) for all well development operations.

Vegetation

2. For interim reclamation the BLM recommends Seed Mix #3 outlined in **Table 1**. It is recommended that seeding occur between September 1 and March 31. If an alternate date of seeding is requested, contact the designated Natural Resource Specialist prior to seeding for approval. Drill seeding is the preferred method of application and drill seeding depth must be no greater than ½ inch. If drill seeding cannot be accomplished, seed should be broadcast at double the rate used for drill seeding, and harrowed into the

soil. Final reclamation will be completed using the reclamation practices and seed mixes recommended at that time.

Table 1. Seed Mix 3 for Interim Reclamation of the 13-13-298 well pad

| Cultivar | Common Name | Scientific Name | Application Rate (lbs PLS/acre) |
|-------------|-------------------------|--|---------------------------------|
| Rosana | Western Wheatgrass | <i>Pascopyrum smithii</i> | 4 |
| Whitmar | Bluebunch Wheatgrass | <i>Pseudoroegneria spicata</i> ssp. <i>Inermis</i> | 3.5 |
| Rimrock | Indian Ricegrass | <i>Achnatherum hymenoides</i> | 3 |
| | Needle and Thread Grass | <i>Hesperostipa comata</i> ssp. <i>comata</i> | 2.5 |
| Maple Grove | Lewis Flax | <i>Linum lewisii</i> | 1 |
| | Scarlet Globemallow | <i>Sphaeralcea coccinea</i> | 0.5 |

3. To reduce erosion and reduce the risk of weed establishment, interim reclamation will be initiated when either there are no drilling activities expected on the pad for the next six months or there has been no activity on the pad within the last six months, regardless of whether or not there are outstanding approved APDs.
4. The maximum extent of disturbance for the wellpad (i.e., the well pad footprint) will be fenced. Fencing should remain in place through successful interim reclamation and again through successful final reclamation to promote re-vegetation and reduce weeds. Fences, cattleguards, and gates (all built to BLM specification per BLM manual H-1741-1 (see below)) will be installed, maintained, and removed by the operator upon approval by the AO. The fence around the pad must also have a wire gate installed adjacent to the cattleguard or at another appropriate location to be used in the case of livestock becoming entrapped inside the pad area. As part of final abandonment the fence around this pad will be removed.

The fence constructed around the well pad will be a BLM Type D 4-wire fence with the following specifications:

- a) 42 inches tall between the soil surface and top wire
 - b) 14 inches between the soil surface and bottom wire
 - c) 10 inches between the top wire and next wire below
 - d) 9 inch spacing on the middle two wires
5. All seed tags will be submitted via Sundry Notice (SN) to the designated Natural Resource Specialist within 14 calendar days from the time the seeding activities have ended. The SN will include the purpose of the seeding activity (i.e., seeding well pad, cut and fill slopes, seeding pipeline corridor, etc.). In addition, the SN will include the well or well pad number associated with the seeding activity, if applicable, the name of the contractor that performed the work, his/her phone number, the method used to apply the seed (e.g., broadcast, hydro-seeded, drilled), whether the seeding activity represents

interim or final reclamation, the total acres seeded, an attached map that clearly identifies all disturbed areas that were seeded, and the date the seed was applied.

6. Each year by January 1st, WPX will submit a Reclamation Status Report to the WRFO that includes the well number, API number, legal description, UTM coordinates, project description (e.g., well pad, pipeline, etc.), reclamation status (e.g., interim or final), whether the well pad and/or pipeline has been re-vegetated and/or re-contoured, date seeded, photos of the reclaimed site, acres seeded, seeding method (e.g., broadcast, drilled, hydro-seeded, etc.), and contact information for the person responsible for developing the report. The report will include maps showing each point (i.e., well pad), polygon, and/or polyline (i.e., pipeline) feature that was included in the report. The data must be submitted in UTM Zone 13N, NAD 83, in units of meters. In addition, scanned copies of seed tags that accompanied the seed bags will be included with the report. Internal and external review of the WRFO Reclamation Status Report and the process used to acquire the necessary information will be conducted annually, and new information or changes in the reporting process will be incorporated into the report.
7. The operator must meet the following reclamation success criteria, and these standards apply to both interim and final reclamation:
 - a) Self-sustaining desirable vegetative groundcover consistent with the site Desired Plant Community (DPC) (as defined by the range site, WRFO Assessment, Inventory, and Monitoring (AIM) protocol site data (BLM TN 440), ecological site or an associated approved reference site) is adequately established as described below on disturbed surfaces to stabilize soils through the life of the project.
 - b) Vegetation with eighty percent similarity of desired foliar cover, bare ground, and shrub and/or forb density in relation to the identified DPC. Vegetative cover values for woodland or shrubland sites are based on the capability of those sites in an herbaceous state.
 - c) The resulting plant community must have composition of at least five desirable plant species, and no one species may exceed 70 percent relative cover to ensure that site species diversity is achieved. Desirable species may include native species from the surrounding site, species listed in the range/ecological site description, AIM data, reference site, or species from the BLM approved seed mix. If non-prescribed or unauthorized plant species (e.g., yellow sweetclover, *Melilotus officinalis*) appear in the reclamation site BLM may require their removal.
 - d) Bare ground does not exceed the AIM data, range site description or if not described, bare ground will not exceed that of a representative undisturbed DPC meeting the Colorado Public Land Health Standards.
8. BLM will require the three 4.5 inch temporary surface frac lines that run from the proposed pad to RG 23-14-298 be placed in the bar ditch and staked to limit movement of the three proposed lines.

Invasive, Non-Native Species

9. All equipment that may act as a vector for weeds must be cleaned before entering the project area.
10. Application of herbicides must comply with the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environments Impact Statement* (EIS), and the WRFO Integrated Weed Management Plan (DOI-BLM-CO-110-2010-0005-EA).
11. All seed, straw, mulch, or other vegetative material to be used on BLM lands will comply with United States Department of Agriculture (USDA) state noxious weed seed requirements and must be certified by a qualified Federal, State, or county office as free of noxious weeds. Any seed lot with test results showing presence of State of Colorado A or B list species will be rejected in its entirety and a new tested lot will be used instead. All areas identified to be disturbed under this proposal will be monitored and treated for noxious weeds on an annual basis for the life of the project until Final Abandonment has been approved by the Authorized Officer.
12. Pesticide Use Proposals (PUPs) must be submitted to and approved by the BLM before applying herbicides on BLM lands. The PUP will include target weed species, the herbicides to be used, application rates and timeframes, estimated acres to be treated, as well as maps depicting the areas to be treated and known locations of weeds. The WRFO recommends that all PUPs be submitted no later than March 1st of the year anticipating herbicide application.

Migratory Birds

13. Vegetation clearing associated with the Proposed Action should be completed prior to May 15 or after July 15 to minimize or avoid egg or nestling mortality associated with migratory bird nesting efforts.
14. Scheduled development of this well would not coincide with the migratory bird nesting season. This COA would be applicable if proposed scheduling was deferred and were to involve the core nesting season (15 May to 15 July). The COA would require avoidance of the core nesting season and, as such, the impacts would be identical to those presented for the Proposed Action.

Cultural Resources

15. An Archaeological monitor must be present during all construction activities related to access road and well tie pipeline construction to ensure that site 5RB.448 is avoided by the construction activities.

Paleontological Resources

16. Any excavations into the underlying native sedimentary rock must be monitored by a permitted paleontologist. The monitoring paleontologist must be present before the start of excavations that may impact bedrock.

Visual Resources

17. Paint and maintain the paint on all permanent above ground structures (on-site for six months or longer) including tanks, associated production equipment, and any piping and valves be painted, Juniper Green according to the BLM Standard Environmental Chart CC-001: June 2008.

Livestock Grazing

18. If the operator damages any range improvement project(s) (e.g. fences, gates, water development, cattleguards) the operator will notify the Authorized Officer through Sundry Notice (Form 3160-5) and identify the actions taken to repair the feature(s) promptly. Repairs must be prior to the livestock grazing permittee's need to utilize the range improvement.

Forestry and Woodland Products

19. Woody materials required for reclamation must be removed in whole with limbs intact and will be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been re-contoured and reseeded, stockpiled woody material will be scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20 percent ground cover. Limbed material will be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use. Woody materials that are to be stockpiled along margins and not used in the topsoil should not exceed pile dimensions of 8 x 8 x 8 feet. Materials used in the stockpiles should be a variety of diameters, but should be no smaller than 6 inches in diameter. Additionally the piles should be no less than 30 feet apart.
20. Trees that must be removed for construction and are not required for reclamation will be cut down to a stump height of 6 inches or less prior to other heavy equipment operation. These trees must be cut in four foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal for company use or removal by the public.

Realty Authorizations

21. The holder will effectively coordinate with existing ROW holders prior to construction activity.

22. The holder will provide the BLM AO with data in a format compatible with the WRFO's ESRI ArcGIS Geographic Information System (GIS) to accurately locate and identify the ROW and all constructed infrastructure, (as-built maps) within 60 days of construction completion. Acceptable data formats are: (1) corrected global positioning system (GPS) files with sub-meter accuracy or better; (2) ESRI shapefiles or geodatabases; or at last resort, (3) AutoCAD .dwg or .dxf files. Option 2 is highly preferred. In ALL cases the data must be submitted in Universal Transverse Mercator (UTM) Zone 13N, NAD 83, in units of meters. Data may be submitted as: (1) an email attachment; or (2) on a standard compact disk (CD) in compressed (WinZip only) or uncompressed format. All data must include metadata, for each submitted layer, that conforms to the Content Standards for Digital Geospatial Metadata from the Federal Geographic Data Committee standards. Questions should be directed to WRFO BLM GIS staff at (970) 878-3800.
23. Construction activity should take place entirely within the areas authorized in the ROW grants and temporary use permit.
24. At least 90 days prior to termination of the ROW, the holder must contact the AO to arrange a joint inspection of the ROW. The inspection will result in the development of an acceptable termination and rehabilitation plan submitted by the holder. This plan will include, but is not limited to, removal of facilities, drainage structures, and surface material (e.g., gravel or concrete), as well as final recontouring, spreading of topsoil, and seeding. The Authorized Officer must approve the plan in writing prior to the holder's commencement of any termination activities.
25. No surface disturbing activities will take place on the subject right-of-way until the associated APD is approved. The holder will adhere to special stipulations in the Surface Use Program of the approved APD, relevant to any right-of-way facilities.
26. Boundary adjustments in Oil and Gas lease/unit COC03453 will automatically amend this right-of-way to include that portion of the facility no longer contained within the above described lease/unit COC03453. In the event of an automatic amendment to this right-of-way, the prior on-lease/unit conditions of approval of this facility will not be affected even though they would now apply to facilities outside of the lease/unit as a result of a boundary adjustment. Rental fees, if appropriate, will be recalculated based on the conditions of this grant and the regulations in effect at the time of an automatic amendment.
27. The holder must notify the authorized officer at least 60 days prior to non-emergency activities that would cause surface disturbance in the right-of-way. A "Notice to Proceed" will be required prior to any non-emergency activities that would cause surface disturbance on the right-of-way. Any request for a "Notice to Proceed" must be made to the authorized officer, who will review the Proposed Action for consistency with resource management concerns such as wildlife, big game winter range, paleontology,

special status species, and cultural resource protection. The authorized officer may require the completion of special status species surveys or other resource surveys by a third party contractor at the expense of the holder. Additional measures may be required to protect special status species or other resources.

Hazardous or Solid Wastes

28. Comply with all Federal, State and/or local laws, rules, regulations, statutes, standards and implementation plans. This includes but is not limited to, Onshore Orders, Surface Use Plans, State and Rio Blanco County permits.
29. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.
30. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).
31. All substances that pose a risk of harm to human health or the environment must be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, must be stored in appropriate containers and in secondary containment systems at 110% of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries must be lined with a minimum 24 mil impermeable liner.
32. Lessee/Operators and ROW holders will report all emissions, releases, spills, leakages, blowouts, fires that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO (970) 878-3800.
33. As a reasonable and prudent lessees/operator and/or ROW holder in the oil and gas industry, acting in good faith, all lessees/operators and ROW holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or ROW holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.

Compliance with laws & Conformance with the Land Use Plan

This decision is in compliance with the Endangered Species Act and the National Historic Preservation Act. It is also in conformance with the 1997 White River Record of Decision/Approved Resource Management Plan.

Environmental Analysis and Finding of No Significant Impact

The Proposed Action was analyzed in DOI-BLM-N05-2015-0115-EA and it was found to have no significant impacts, thus an EIS is not required.

Public Involvement

This project was posted on the WRFO's on-line National Environmental Policy Act (NEPA) register on August 19, 2014. No comments or inquiries have been received.

Rationale

Analysis of the Proposed Action has concluded that there are no significant negative impacts and that it meets Colorado Standards for Public Land Health. Additionally, this location is would have 20 wells on location, reducing the overall disturbance if the resource was to be retrieved from single well pads.

Monitoring and Compliance

On-going compliance inspections and monitoring of drilling, production, and post-production activities will be conducted by White River Field Office staff during construction of well pads, access roads, and pipelines. Specific mitigation developed in the associated Categorical Exclusion and the lease terms and conditions will be followed. The Operator will be notified of compliance related issues in writing, and depending on the nature of the issue(s), will be provided 30 days to resolve such issues.

Administrative Remedies

State Director Review

Under regulations addressed in 43 CFR 3165.3(b), any adversely affected party that contests a decision of the Authorized Officer may request an administrative review, before the State Director, either with or without oral presentation. Such request, including all supporting documentation, shall be filed in writing with the BLM Colorado State Office at 2850 Youngfield Street, Lakewood, Colorado 80215 within 20 business days of the date such decision was received or considered to have been received. Upon request and showing of good cause, an extension may be granted by the State Director. Such review shall include all factors or circumstances relevant to the particular case.

Appeal

Any party who is adversely affected by the decision of the State Director after State Director review, under 43 CFR 3165.3(b), of a decision may appeal that decision to the Interior Board of Land Appeals pursuant to the regulations set out in 43 CFR Part 4.

This decision shall take effect immediately upon the date it is signed by the Authorized Officer and shall remain in effect while any appeal is pending unless the Interior Board of Land Appeals issues a stay (43 CFR 2801.10(b)). Any appeal of this decision must follow the procedures set forth in 43 CFR Part 4. Within 30 days of the decision, a Notice of Appeal must be filed in the office of the Authorized Officer at White River Field Office, 220 East Market St., Meeker, CO 81641 with copies sent to the Regional Solicitor, Rocky Mountain Region, 755 Parfet St., Suite 151, Lakewood, CO 80215, and to the Department of the Interior, Board of Land Appeals, 801 North Quincy St., MS300-QC, Arlington, VA, 22203. If a statement of reasons for the appeal is not included with the notice, it must be filed with the Interior Board of Land Appeals at the above address within 30 days after the Notice of Appeal is filed with the Authorized Officer.

Signature of Authorized Official



Field Manager



Date

**U.S. Department of the Interior
Bureau of Land Management
White River Field Office
220 E Market St
Meeker, CO 81641**

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

WPX's Proposed RG 13-13-298 well pad (20 APDs)
DOI-BLM-CO-N05-2015-0115-EA

Background

WPX Energy Rocky Mountain LLC (WPX) is proposing to construct one well pad with 20 natural gas wells. There will also be an associated access road, pipeline, and remote fracing temporary surface lines. The well pad is proposed at approximately 3.62 acres with a total edge of disturbance acreage estimated at 6.76 acres. After interim reclamation has been successful, the pad is estimated to be reclaimed to approximately 1.59 acres. The access road and pipeline will come off of Rio Blanco County (RBC) Road 26 for a construction length of approximately 1,919 feet and pipeline length of 1,880 feet.

Finding of No Significant Impact

Based upon a review of the EA and the supporting documents, I have determined that the Proposed Action will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27 and do not exceed those effects as described in the White River Resource Area Proposed Resource Management Plan and Final Environmental Impact Statement (1996). Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

Context

The project is a site-specific action directly involving BLM administered public lands that do not in and of itself have international, national, regional, or state-wide importance. The proposed location has over five known well locations within one mile. Although not in a Federal Unit, the lease is within two miles of three Federal Units.

Intensity

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

1. Impacts that may be both beneficial and adverse.

During construction, the Proposed Action will have 6.76 acres of disturbance, reducing down to 1.59 acres after the successful interim reclamation. After final abandonment and final reclamation of the location, the disturbance would return to 0 acres. This well pad location is proposed for 20 wells, reducing the amount of disturbance that would occur if the resource was retrieved from single well pads.

2. The degree to which the Proposed Action affects public health or safety.

There would be no impact to public health and safety if the safety measures described in the operator's drilling plan and Surface Use Plan of Operations are properly implemented, and the developed mitigation is adhered to.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

A cultural resources Class III inventory was completed for the Proposed Action and identified two resources within the Area of Potential Affect. However, the Proposed Action was re-designed to move the disturbance away from the resources.

4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial.

No comments or concerns have been received regarding possible effects on the quality of the human environment during scoping.

5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.

No highly uncertain or unknown risks to the human environment were identified during analysis of the Proposed Action.

6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The Proposed Action neither establishes a precedent for future BLM actions with significant effects nor represents a decision in principle about a future consideration. This action is similar to many actions proposed and reviewed in the NEPA process in the BLM WRFO that involve construction of a well pad, constructing an access road, and drilling one or more wells.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

The Proposed Action was considered in the context of past, present, and reasonably foreseeable actions. No cumulative impacts related to other actions that would have a significant adverse impact were identified or are anticipated.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

A cultural resources Class III inventory was completed for the Proposed Action and identified two resources within the Area of Potential Affect. However, the Proposed Action was re-designed to move the disturbance away from the resources.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.

No special status plant species concerns have been identified. Cumulative water depletions from the Colorado River Basin are considered likely to jeopardize the continued existence of the Colorado pikeminnow, humpback chub, bonytail, and razorback sucker and result in the destruction or adverse modification of their critical habitat. In 2008, BLM prepared a Programmatic Biological Assessment (PBA) that addressed water depleting activities associated with BLM's fluid minerals program in the Colorado River Basin in Colorado, including water used for well drilling, hydrostatic testing of pipelines, and dust abatement on roads. In response, the U.S. Fish and Wildlife Service (FWS) prepared a Programmatic Biological Opinion (PBO) that addressed water depletions associated with fluid minerals development on BLM lands. The PBO included reasonable and prudent alternatives which allowed BLM to authorize oil and gas wells that result in water depletion while avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat. The reasonable and prudent alternative authorized BLM to solicit a one-time contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in an amount based on the average annual acre-ft depleted by fluid minerals activities on BLM lands. This contribution was ultimately provided to the Recovery Program through an oil and natural gas development trade association. Development associated with this project would be entered into the WRFO fluid minerals water depletion log that is submitted to the Colorado State Office at the end of each Fiscal Year.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Neither the Proposed Action nor impacts associated with it violate any laws or requirements imposed for the protection of the environment.

Signature of Authorized Official

Thunt E. Walker

Field Manager

04/30/2015
Date

**U.S. Department of the Interior
Bureau of Land Management
White River Field Office
220 E Market St
Meeker, CO 81641**

DECISION RECORD

WPX's Proposed RG 13-13-298 well pad (20 APDs)
DOI-BLM-CO-N05-2015-0115-EA

Decision

It is my decision to implement the Proposed Action, as mitigated in DOI-BLM-CO-N05-2015-0115-EA, authorizing the construction, operation, and maintenance of the RG 13-13-298 well pad, 20 associated wells, an access road and pipeline.

Applicant Committed Design Features

1. WPX Energy adheres to complete compliance with federal and state air quality regulations as prescribed by the Clean Air Act and CDPHE Regulations Nos. 1,2,3 &7. WPX Energy is proactive in its permitting and compliance demonstrations by employing Emission Control Devices (ECD) where is warranted and closely monitors the operations of these devices. WPX Energy works closely with the CDPHE Air Pollution Control Division to obtain permits and make any air emission controls installed enforceable through compliance demonstrations and ensure that they meet the highest achievable efficiency and standards. WPX will limit unnecessary emissions from point or nonpoint pollution sources and prevent air quality deterioration from necessary pollutions sources in accordance with all applicable state, federal and local air quality law and regulations.
2. WPX will treat all access roads with water and/or chemical dust suppressant during construction and drilling activities so that there is not a visible dust trail behind vehicles. Any technique other than the use of fresh water as a dust suppressant on BLM lands will require prior written approval from the BLM.
3. All chemical management will comply with COGCC, CDPHE, and SARA Title III reporting requirements, including MSDS sheets for all chemicals used in WPX Energy's operation.
4. Cultural surveys have been ordered. WPX will inform all persons who are associated with the project they will be subject to prosecution for knowingly disturbing archeological sites or for collecting artifacts.

5. If any archeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archeologist will be notified immediately. Work may not resume at that location until approved by the AO. WPX will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation options within 48 hours of the discovery. WPX, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.
6. Pursuant to 43 CFR 10.4(g), WPX will notify the AO, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to CFR 10.4(c) and (d), WPX will stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.
7. WPX will notify Craig Interagency Dispatch (970-826-5037) in the event of any fire. The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type, and provide their contact information. The reporting party, or representative of, should remain nearby, in a safe location, in order to make contact with incoming fire resources to expedite actions taken towards and appropriate management response.
8. All parties will not engage in any fire suppression activities outside the approved a project area. Accidental ignitions caused by welding, cuttings, grinding etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used WPX must notify incoming fire resources on extinguisher type and location of use.
9. WPX will chip and mix with topsoil for future redistribution all vegetation not being used for storm water management or erosion controls.
10. Drilling plans will comply with COGCC, CDPHE and local government agency ground water protection regulations.
11. Noise thresholds as established with COGCC will be complied with in accordance with State Title 34 regulations.
12. WPX will inform all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing or collecting vertebrate fossils, collecting large amounts of petrified wood (over 25lbs/day, up to 250lbs/year) or collecting fossils for commercial purposes on public lands.

13. If any paleontological resources are discovered as a result of operations under this authorization, WPX and any of its agents will stop work immediately at that site, and the BLM Paleontology Coordinator will be notified immediately. WPX will make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the AO. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 days, WPX will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (b) following the Paleontology Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.
14. Fences, water developments, cattleguards, gates or other livestock handling/distribution facilities that are damaged or destroyed either directly or indirectly as a result of implementation of this Proposed Action shall be promptly repaired or replaced by WPX to restore pre-disturbance functionality.
15. WPX will notify the permittee authorized to graze livestock within the project area or WRFO Range Management staff of planning construction activities 72 hours prior to beginning construction.
16. Erosion features such as rilling, gulying, piping and mass wasting on surface disturbance or adjacent to the surface disturbance as a result of these actions will be addressed immediately after observation by contacting the Authorized Officer (AO) and by submitting a plan to assure successful soil stabilization with BMP's to address erosion problems.
17. All spills will be managed in accordance with Federal, State and local requirements, including notification, reporting, response and remediation actions.

Mitigation Measures

Air Quality

1. All drill rigs, fracing and completion related engines will be required to meet EPA Non-Road Tier II Emissions Standards (or cleaner) for all well development operations.

Vegetation

2. For interim reclamation the BLM recommends Seed Mix #3 outlined in **Table 1**. It is recommended that seeding occur between September 1 and March 31. If an alternate date of seeding is requested, contact the designated Natural Resource Specialist prior to seeding for approval. Drill seeding is the preferred method of application and drill seeding depth must be no greater than ½ inch. If drill seeding cannot be accomplished, seed should be broadcast at double the rate used for drill seeding, and harrowed into the

soil. Final reclamation will be completed using the reclamation practices and seed mixes recommended at that time.

Table 1. Seed Mix 3 for Interim Reclamation of the 13-13-298 well pad

| Cultivar | Common Name | Scientific Name | Application Rate (lbs PLS/acre) |
|-------------|-------------------------|--|---------------------------------|
| Rosana | Western Wheatgrass | <i>Pascopyrum smithii</i> | 4 |
| Whitmar | Bluebunch Wheatgrass | <i>Pseudoroegneria spicata</i> ssp. <i>Inermis</i> | 3.5 |
| Rimrock | Indian Ricegrass | <i>Achnatherum hymenoides</i> | 3 |
| | Needle and Thread Grass | <i>Hesperostipa comata</i> ssp. <i>comata</i> | 2.5 |
| Maple Grove | Lewis Flax | <i>Linum lewisii</i> | 1 |
| | Scarlet Globemallow | <i>Sphaeralcea coccinea</i> | 0.5 |

3. To reduce erosion and reduce the risk of weed establishment, interim reclamation will be initiated when either there are no drilling activities expected on the pad for the next six months or there has been no activity on the pad within the last six months, regardless of whether or not there are outstanding approved APDs.
4. The maximum extent of disturbance for the wellpad (i.e., the well pad footprint) will be fenced. Fencing should remain in place through successful interim reclamation and again through successful final reclamation to promote re-vegetation and reduce weeds. Fences, cattleguards, and gates (all built to BLM specification per BLM manual H-1741-1 (see below)) will be installed, maintained, and removed by the operator upon approval by the AO. The fence around the pad must also have a wire gate installed adjacent to the cattleguard or at another appropriate location to be used in the case of livestock becoming entrapped inside the pad area. As part of final abandonment the fence around this pad will be removed.

The fence constructed around the well pad will be a BLM Type D 4-wire fence with the following specifications:

- a) 42 inches tall between the soil surface and top wire
 - b) 14 inches between the soil surface and bottom wire
 - c) 10 inches between the top wire and next wire below
 - d) 9 inch spacing on the middle two wires
5. All seed tags will be submitted via Sundry Notice (SN) to the designated Natural Resource Specialist within 14 calendar days from the time the seeding activities have ended. The SN will include the purpose of the seeding activity (i.e., seeding well pad, cut and fill slopes, seeding pipeline corridor, etc.). In addition, the SN will include the well or well pad number associated with the seeding activity, if applicable, the name of the contractor that performed the work, his/her phone number, the method used to apply the seed (e.g., broadcast, hydro-seeded, drilled), whether the seeding activity represents

interim or final reclamation, the total acres seeded, an attached map that clearly identifies all disturbed areas that were seeded, and the date the seed was applied.

6. Each year by January 1st, WPX will submit a Reclamation Status Report to the WRFO that includes the well number, API number, legal description, UTM coordinates, project description (e.g., well pad, pipeline, etc.), reclamation status (e.g., interim or final), whether the well pad and/or pipeline has been re-vegetated and/or re-contoured, date seeded, photos of the reclaimed site, acres seeded, seeding method (e.g., broadcast, drilled, hydro-seeded, etc.), and contact information for the person responsible for developing the report. The report will include maps showing each point (i.e., well pad), polygon, and/or polyline (i.e., pipeline) feature that was included in the report. The data must be submitted in UTM Zone 13N, NAD 83, in units of meters. In addition, scanned copies of seed tags that accompanied the seed bags will be included with the report. Internal and external review of the WRFO Reclamation Status Report and the process used to acquire the necessary information will be conducted annually, and new information or changes in the reporting process will be incorporated into the report.
7. The operator must meet the following reclamation success criteria, and these standards apply to both interim and final reclamation:
 - a) Self-sustaining desirable vegetative groundcover consistent with the site Desired Plant Community (DPC) (as defined by the range site, WRFO Assessment, Inventory, and Monitoring (AIM) protocol site data (BLM TN 440), ecological site or an associated approved reference site) is adequately established as described below on disturbed surfaces to stabilize soils through the life of the project.
 - b) Vegetation with eighty percent similarity of desired foliar cover, bare ground, and shrub and/or forb density in relation to the identified DPC. Vegetative cover values for woodland or shrubland sites are based on the capability of those sites in an herbaceous state.
 - c) The resulting plant community must have composition of at least five desirable plant species, and no one species may exceed 70 percent relative cover to ensure that site species diversity is achieved. Desirable species may include native species from the surrounding site, species listed in the range/ecological site description, AIM data, reference site, or species from the BLM approved seed mix. If non-prescribed or unauthorized plant species (e.g., yellow sweetclover, *Melilotus officinalis*) appear in the reclamation site BLM may require their removal.
 - d) Bare ground does not exceed the AIM data, range site description or if not described, bare ground will not exceed that of a representative undisturbed DPC meeting the Colorado Public Land Health Standards.
8. BLM will require the three 4.5 inch temporary surface frac lines that run from the proposed pad to RG 23-14-298 be placed in the bar ditch and staked to limit movement of the three proposed lines.

Invasive, Non-Native Species

9. All equipment that may act as a vector for weeds must be cleaned before entering the project area.
10. Application of herbicides must comply with the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environments Impact Statement* (EIS), and the WRFO Integrated Weed Management Plan (DOI-BLM-CO-110-2010-0005-EA).
11. All seed, straw, mulch, or other vegetative material to be used on BLM lands will comply with United States Department of Agriculture (USDA) state noxious weed seed requirements and must be certified by a qualified Federal, State, or county office as free of noxious weeds. Any seed lot with test results showing presence of State of Colorado A or B list species will be rejected in its entirety and a new tested lot will be used instead. All areas identified to be disturbed under this proposal will be monitored and treated for noxious weeds on an annual basis for the life of the project until Final Abandonment has been approved by the Authorized Officer.
12. Pesticide Use Proposals (PUPs) must be submitted to and approved by the BLM before applying herbicides on BLM lands. The PUP will include target weed species, the herbicides to be used, application rates and timeframes, estimated acres to be treated, as well as maps depicting the areas to be treated and known locations of weeds. The WRFO recommends that all PUPs be submitted no later than March 1st of the year anticipating herbicide application.

Migratory Birds

13. Vegetation clearing associated with the Proposed Action should be completed prior to May 15 or after July 15 to minimize or avoid egg or nestling mortality associated with migratory bird nesting efforts.
14. Scheduled development of this well would not coincide with the migratory bird nesting season. This COA would be applicable if proposed scheduling was deferred and were to involve the core nesting season (15 May to 15 July). The COA would require avoidance of the core nesting season and, as such, the impacts would be identical to those presented for the Proposed Action.

Cultural Resources

15. An Archaeological monitor must be present during all construction activities related to access road and well tie pipeline construction to ensure that site 5RB.448 is avoided by the construction activities.

Paleontological Resources

16. Any excavations into the underlying native sedimentary rock must be monitored by a permitted paleontologist. The monitoring paleontologist must be present before the start of excavations that may impact bedrock.

Visual Resources

17. Paint and maintain the paint on all permanent above ground structures (on-site for six months or longer) including tanks, associated production equipment, and any piping and valves be painted, Juniper Green according to the BLM Standard Environmental Chart CC-001: June 2008.

Livestock Grazing

18. If the operator damages any range improvement project(s) (e.g. fences, gates, water development, cattleguards) the operator will notify the Authorized Officer through Sundry Notice (Form 3160-5) and identify the actions taken to repair the feature(s) promptly. Repairs must be prior to the livestock grazing permittee's need to utilize the range improvement.

Forestry and Woodland Products

19. Woody materials required for reclamation must be removed in whole with limbs intact and will be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been re-contoured and reseeded, stockpiled woody material will be scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20 percent ground cover. Limbed material will be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use. Woody materials that are to be stockpiled along margins and not used in the topsoil should not exceed pile dimensions of 8 x 8 x 8 feet. Materials used in the stockpiles should be a variety of diameters, but should be no smaller than 6 inches in diameter. Additionally the piles should be no less than 30 feet apart.
20. Trees that must be removed for construction and are not required for reclamation will be cut down to a stump height of 6 inches or less prior to other heavy equipment operation. These trees must be cut in four foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal for company use or removal by the public.

Realty Authorizations

21. The holder will effectively coordinate with existing ROW holders prior to construction activity.

22. The holder will provide the BLM AO with data in a format compatible with the WRFO's ESRI ArcGIS Geographic Information System (GIS) to accurately locate and identify the ROW and all constructed infrastructure, (as-built maps) within 60 days of construction completion. Acceptable data formats are: (1) corrected global positioning system (GPS) files with sub-meter accuracy or better; (2) ESRI shapefiles or geodatabases; or at last resort, (3) AutoCAD .dwg or .dxf files. Option 2 is highly preferred. In ALL cases the data must be submitted in Universal Transverse Mercator (UTM) Zone 13N, NAD 83, in units of meters. Data may be submitted as: (1) an email attachment; or (2) on a standard compact disk (CD) in compressed (WinZip only) or uncompressed format. All data must include metadata, for each submitted layer, that conforms to the Content Standards for Digital Geospatial Metadata from the Federal Geographic Data Committee standards. Questions should be directed to WRFO BLM GIS staff at (970) 878-3800.
23. Construction activity should take place entirely within the areas authorized in the ROW grants and temporary use permit.
24. At least 90 days prior to termination of the ROW, the holder must contact the AO to arrange a joint inspection of the ROW. The inspection will result in the development of an acceptable termination and rehabilitation plan submitted by the holder. This plan will include, but is not limited to, removal of facilities, drainage structures, and surface material (e.g., gravel or concrete), as well as final recontouring, spreading of topsoil, and seeding. The Authorized Officer must approve the plan in writing prior to the holder's commencement of any termination activities.
25. No surface disturbing activities will take place on the subject right-of-way until the associated APD is approved. The holder will adhere to special stipulations in the Surface Use Program of the approved APD, relevant to any right-of-way facilities.
26. Boundary adjustments in Oil and Gas lease/unit COC03453 will automatically amend this right-of-way to include that portion of the facility no longer contained within the above described lease/unit COC03453. In the event of an automatic amendment to this right-of-way, the prior on-lease/unit conditions of approval of this facility will not be affected even though they would now apply to facilities outside of the lease/unit as a result of a boundary adjustment. Rental fees, if appropriate, will be recalculated based on the conditions of this grant and the regulations in effect at the time of an automatic amendment.
27. The holder must notify the authorized officer at least 60 days prior to non-emergency activities that would cause surface disturbance in the right-of-way. A "Notice to Proceed" will be required prior to any non-emergency activities that would cause surface disturbance on the right-of-way. Any request for a "Notice to Proceed" must be made to the authorized officer, who will review the Proposed Action for consistency with resource management concerns such as wildlife, big game winter range, paleontology,

special status species, and cultural resource protection. The authorized officer may require the completion of special status species surveys or other resource surveys by a third party contractor at the expense of the holder. Additional measures may be required to protect special status species or other resources.

Hazardous or Solid Wastes

28. Comply with all Federal, State and/or local laws, rules, regulations, statutes, standards and implementation plans. This includes but is not limited to, Onshore Orders, Surface Use Plans, State and Rio Blanco County permits.
29. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.
30. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).
31. All substances that pose a risk of harm to human health or the environment must be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, must be stored in appropriate containers and in secondary containment systems at 110% of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries must be lined with a minimum 24 mil impermeable liner.
32. Lessee/Operators and ROW holders will report all emissions, releases, spills, leakages, blowouts, fires that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO (970) 878-3800.
33. As a reasonable and prudent lessees/operator and/or ROW holder in the oil and gas industry, acting in good faith, all lessees/operators and ROW holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or ROW holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.

Compliance with laws & Conformance with the Land Use Plan

This decision is in compliance with the Endangered Species Act and the National Historic Preservation Act. It is also in conformance with the 1997 White River Record of Decision/Approved Resource Management Plan.

Environmental Analysis and Finding of No Significant Impact

The Proposed Action was analyzed in DOI-BLM-N05-2015-0115-EA and it was found to have no significant impacts, thus an EIS is not required.

Public Involvement

This project was posted on the WRFO's on-line National Environmental Policy Act (NEPA) register on August 19, 2014. No comments or inquiries have been received.

Rationale

Analysis of the Proposed Action has concluded that there are no significant negative impacts and that it meets Colorado Standards for Public Land Health. Additionally, this location is would have 20 wells on location, reducing the overall disturbance if the resource was to be retrieved from single well pads.

Monitoring and Compliance

On-going compliance inspections and monitoring of drilling, production, and post-production activities will be conducted by White River Field Office staff during construction of well pads, access roads, and pipelines. Specific mitigation developed in the associated Categorical Exclusion and the lease terms and conditions will be followed. The Operator will be notified of compliance related issues in writing, and depending on the nature of the issue(s), will be provided 30 days to resolve such issues.

Administrative Remedies

State Director Review

Under regulations addressed in 43 CFR 3165.3(b), any adversely affected party that contests a decision of the Authorized Officer may request an administrative review, before the State Director, either with or without oral presentation. Such request, including all supporting documentation, shall be filed in writing with the BLM Colorado State Office at 2850 Youngfield Street, Lakewood, Colorado 80215 within 20 business days of the date such decision was received or considered to have been received. Upon request and showing of good cause, an extension may be granted by the State Director. Such review shall include all factors or circumstances relevant to the particular case.

Appeal

Any party who is adversely affected by the decision of the State Director after State Director review, under 43 CFR 3165.3(b), of a decision may appeal that decision to the Interior Board of Land Appeals pursuant to the regulations set out in 43 CFR Part 4.

This decision shall take effect immediately upon the date it is signed by the Authorized Officer and shall remain in effect while any appeal is pending unless the Interior Board of Land Appeals issues a stay (43 CFR 2801.10(b)). Any appeal of this decision must follow the procedures set forth in 43 CFR Part 4. Within 30 days of the decision, a Notice of Appeal must be filed in the office of the Authorized Officer at White River Field Office, 220 East Market St., Meeker, CO 81641 with copies sent to the Regional Solicitor, Rocky Mountain Region, 755 Parfet St., Suite 151, Lakewood, CO 80215, and to the Department of the Interior, Board of Land Appeals, 801 North Quincy St., MS300-QC, Arlington, VA, 22203. If a statement of reasons for the appeal is not included with the notice, it must be filed with the Interior Board of Land Appeals at the above address within 30 days after the Notice of Appeal is filed with the Authorized Officer.

Signature of Authorized Official



Field Manager



Date